

THE RELATION BETWEEN EXTRACURRICULAR DESIGN WORKSHOPS
AND THE EDUCATIONAL AND PROFESSIONAL DEVELOPMENTS OF
INDUSTRIAL DESIGN STUDENTS

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

ZELİHA DİDEM YANPAR

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF SCIENCE
IN
INDUSTRIAL DESIGN

FEBRUARY 2018

Approval of the thesis:

**THE RELATION BETWEEN EXTRACURRICULAR DESIGN
WORKSHOPS AND THE EDUCATIONAL AND PROFESSIONAL
DEVELOPMENTS OF INDUSTRIAL DESIGN STUDENTS**

submitted by **ZELİHA DİDEM YANPAR** in partial fulfillment of the requirements
for the degree of **Master of Science in Industrial Design Department, Middle East
Technical University** by,

Prof. Dr. Gülbin Dural Ünver
Dean, Graduate School of **Natural and Applied Sciences**

Prof. Dr. Gülay Hasdoğın
Head of Department, **Industrial Design**

Assist. Prof. Dr. Pınar Kaygan
Supervisor, **Industrial Design Dept., METU**

Examining Committee Members:

Prof. Dr. Gülay Hasdoğın
Industrial Design Dept., METU

Assist. Prof. Dr. Pınar Kaygan
Industrial Design Dept., METU

Assoc. Prof. Dr. Dilek Akbulut
Industrial Design Dept., Gazi University

Date: 01/02/2018

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last name : Zeliha Didem, Yanpar

Signature :

ABSTRACT

THE RELATION BETWEEN EXTRACURRICULAR DESIGN WORKSHOPS AND THE EDUCATIONAL AND PROFESSIONAL DEVELOPMENTS OF INDUSTRIAL DESIGN STUDENTS

Yanpar, Zeliha Didem
M.Sc., Department of Industrial Design
Supervisor: Assist. Prof. Dr. Pınar Kaygan

February 2018, 157 pages

In the recent years, there is an increase in the number of design workshops addressing industrial design students. Despite the rising interest and participation of industrial design students in these workshops as extracurricular activities, there is a lack of systematic research focusing on this subject. Addressing this gap, this study aims to capture the overall picture of industrial design students' participation in extracurricular design workshops. This thesis particularly examines industrial design students' experiences and expectations from their participation in these workshops considering their educational and professional development. The field study of the thesis consists of two research methods to obtain data from industrial design students from five universities in Turkey. At the first stage of data collection, descriptive questionnaires were employed to 315 students to understand the overall level of participation in design workshops. At the second stage, semi-structured interviews were conducted with 26 students among the participants of the questionnaire who have a stronger interest in design workshops. Based on both qualitative and quantitative analysis of collected data, this thesis offers two main conclusions concerning students' both educational and professional development. First, different characteristics of workshop environment and students' attitudes towards design workshops support industrial design students to develop an active design learning in workshops. Second, teamwork experiences in design workshops contribute to industrial design students' knowledge

and skill development through peer learning, collaborative work, and social and professional networking in workshops.

Keywords: design workshops, extracurricular activities, industrial design education

ÖZ

MÜFREDAT DIŐI BİR ETKİNLİK OLARAK DÜZENLENEN TASARIM ÇALIŐTAYLARININ ENDÜSTRİ ÜRÜNLERİ TASARIMI ÖĐRENCİLERİNİN EĐİTSEL VE MESLEKİ GELİŐİMLERİ İLE İLİŐKİSİ

Yanpar, Zeliha Didem
Yüksek Lisans, Endüstri Ürünleri Tasarımı Bölümü
Tez Yöneticisi: Yrd. Doç. Dr. Pınar Kaygan

Őubat 2018, 157 sayfa

Son yıllarda, endüstri ürünleri tasarımı öğrencilerinin katılımına açık olarak düzenlenen tasarım çalıştaylarının sayısında bir artış görülüyor. Öğrencilerin bu çalıştaylara artan ilgisi ve katılımına rağmen, bu konu ile ilgili yapılmış sistematik bir araştırma bulunmuyor. Bu tez, literatürdeki bu eksikliğin üzerine eğilerek, endüstri ürünleri tasarımı öğrencilerinin müfredat dışı bir aktivite olarak tasarım çalıştaylarına katılımına dair genel durumu anlamayı amaçlıyor. Ayrıca, bu tez özellikle öğrencilerin tasarım çalıştaylarına katılımlarına dair deneyimlerini, eğitsel ve mesleki gelişimlerine yönelik beklentilerini inceliyor. Türkiye'deki beş üniversitenin endüstri ürünleri tasarımı öğrencilerinden veri toplamak amacıyla, bu tezin alan çalışmasında iki ayrı araştırma yöntemi kullanıldı. Alan çalışmasının ilk aşamasında, öğrencilerin tasarım çalıştaylarına katılımına dair genel durumu anlamak amacıyla 315 öğrenci ile anket yapıldı. İkinci aşamasında ise, bu çalıştaylara yoğun ilgi göstermiş 26 öğrenci ile bireysel görüşmeler yapıldı. Toplanan verinin nicel ve nitel analizi sonucunda, öğrencilerin hem eğitsel hem de mesleki gelişimleri göz önünde bulundurularak, iki temel sonuç çıkarılmıştır. İlk olarak; tasarım çalıştaylarının özellikleri ve öğrencilerin bu çalıştaylara yaklaşımları; endüstriyel tasarım öğrencilerinin bu çalıştaylarda aktif bir tasarım öğrenimi geliştirmesini sağlıyor. İkinci olarak; çalıştaylardaki ekip çalışması deneyimleri; akran öğrenimi, işbirlikli çalışma ve sosyal ve mesleki ağlarını

geniřletme yoluyla endüstri ürünleri tasarımı öğrencilerinin bilgi ve beceri gelişimine katkıda bulunuyor.

Anahtar Kelimeler: tasarım çalıştayları, müfredat dışı aktiviteler, endüstriyel tasarım eğitimi

to *Dudu* and *Fuat*

ACKNOWLEDGMENTS

First and the foremost, I would like to express my sincerest gratitude to my supervisor *Assist. Prof. Dr. Pınar Kaygan* for her endless support, guidance, and encouragement throughout this challenging process. I am thankful for her valuable insights, inspiring advice, understanding, and effort for the completion of this thesis. It was a great chance to work with her.

Besides my supervisor, I would like to thank the rest of my thesis committee: *Prof. Dr. Gülay Hasdoğın* and *Assoc. Prof. Dr. Dilek Akbulut* for their insightful criticism and feedback, but also for valuable suggestions to widen my research from various perspectives in future studies.

I would also like to thank *Assist. Prof. Dr. Fatma Korkut* for the valuable time and effort she made for me at the beginning of my thesis journey. I am grateful for her support, sympathy and warm attention.

I would like to express my gratitude for the members of the Department of Industrial Design at METU, ITU, Gazi University, Bahçeşehir University and Anadolu University for their kind hospitality, and their support and interest in my research. I would also like to thank all the participants involved in the questionnaires and interviews for allocating their valuable time for this study.

My special thanks goes to *İrem Dilek*, for being such a good friend but also sharing her knowledge and experiences with me during my thesis process; *Tim Denshire-Key* for valuable comments on my writing, *İtir Güngör Boncukçu* for always being there to help and giving me the great news that makes me really happy in the most stressful times of this thesis, *Can Hatunođlu*, *Gizem Eren*, *Özümcan Demir Çalışkan*, *Sedef Süner* and *Ümit Bayırlı* for their help and support throughout this journey.

My deepest gratitude goes to my parents, *Zeynep Yanpar* and *Hacı Ali Yanpar*, and my dear brother *Fuat Onur Yanpar* for their love and support throughout my life and this thesis and sharing my excitement about my study.

Lastly, and most importantly, I am very grateful to my beloved one *Yaşam Uzun*, for his precious love and support; for his believing in me and encouraging me during the challenging stages of this thesis; and for making me feel happy and alive even in the most stressful times. I feel really lucky to have him in my life.

TABLE OF CONTENTS

ABSTRACT	v
ÖZ.....	vii
ACKNOWLEDGMENTS.....	x
TABLE OF CONTENTS	xii
LIST OF TABLES	xvi
LIST OF FIGURES.....	xvii
CHAPTERS	
1. INTRODUCTION.....	1
1.1 Background	1
1.2 Aim and Scope of Study.....	4
1.3 Research Questions	4
1.4 Structure of the Thesis.....	5
2. LITERATURE REVIEW.....	7
2.1 Industrial Design	7
2.1.1 The scope of industrial design.....	8
2.1.2 The aim of industrial design.....	9
2.2 Emergent Roles for The Industrial Designers	10
2.3 Industrial Design Education	12
2.4 Self-Regulated Design Learning	19
2.5 Self-Development Through Life-Long Learning	22

2.5.2 Design Workshops	26
2.6 Summary	28
3. METHODOLOGY	31
3.1 Research Design.....	31
3.1.1 Questionnaire	32
3.1.1.1 Design of the Questionnaire.....	33
3.1.1.2 Population and Sampling	34
3.1.1.3 Conduct of the Questionnaire.....	35
3.1.1.4 Analysis of the Questionnaire	38
3.1.2 Interview	39
3.1.2.1 Design of the Interview	40
3.1.2.2 Selection of the Interviewees	41
3.1.2.3 Conduct of the Interviews	43
3.1.2.4 Analysis of the Interviews.....	44
3.1.2.4.1 Transcribing the Interview Data	45
3.1.2.4.2 The Analysis Process	46
3.2 Summary	47
4. ANALYSIS	49
4.1 The Variety of Design Workshops.....	49
4.2 Industrial Design Students' Criteria to Select Design Workshops	52
4.2.1 Workshop Subjects	52
4.2.2 Workshop Facilitators	56
4.3 Students' Acquisitions from Workshops	58
4.3.1 Learning in Workshops.....	58
4.3.1.1 Motivation for Learning.....	59
4.3.1.2 Learning Environment	61

4.3.1.3 Intensity of Learning	65
4.3.1.4 Learning from Workshop Facilitators	68
4.3.1.5 Learning from Peers	73
4.3.1.5.1 Individual Participation in Workshops.....	73
4.3.1.5.2 Teamwork in Workshops	75
4.3.2 Professional Benefits of Workshop Participation	87
4.3.2.1 Getting Prepared for Professional Life.....	87
4.3.2.2 Contribution to Their CV/Portfolio.....	95
4.3.2.3 Building Networks in Workshops	100
4.3.2.3.1 Networking with Facilitators.....	101
4.3.2.3.2 Networking among Students	104
4.4 Summary	107
5. CONCLUSIONS.....	111
5.1 Overview of the Study.....	111
5.2 Main Conclusions.....	112
5.2.1 Design Learning Through Workshops	114
5.2.2 Teamwork in Workshops	117
5.3 Limitations of the Research and Suggestions for Further Studies	121
REFERENCES.....	123
APPENDICES	
A. QUESTIONNAIRE.....	133
B. QUESTIONNAIRE DATA SHEET	135
C. THE QUESTIONNAIRE DATA-WORKSHOP LIST.....	137
D. SELECTION OF THE INTERVIEWEES	147
E. CONSENT FORM.....	149
F. INTERVIEW GUIDE.....	151

F. INTERVIEW GUIDE.....	151
G. TRANSCRIBING THE INTERVIEW DATA	153
H. THE FIRST ROUND OF CODING	155
I. THE SECOND ROUND OF CODING.....	157

LIST OF TABLES

TABLES

Table3.1: Distribution of Participants in Different Universities	38
Table 3.2: The Distribution of the Quantity of Workshops That Students	39
Participated in.....	39
Table 3.3: The Numbers of Workshops Which the Participants of the Interviews Attended	42
Table 3.4: The Distribution of Participants According to the Universities.....	42
Table C.1: The Questionnaire Data- Workshop List.....	137

LIST OF FIGURES

FIGURES

Figure 2.1 The New Designer	11
Figure 2.2 Educational Models: The Funnel.....	17
Figure 2.3 Educational Models: The Pond.....	18
Figure 2.4 Thinking Styles and Creative Order Between	27
Figure B.1 An Example of Questionnaire Data Sheet	135
Figure D.1 Selection of Interviews	147
Figure G.1 Transcribing the Interview Data	153
Figure H.1 An Example of the First Round of Coding	155
Figure I.1 An example of Second Round of Coding in Microsoft Excel.....	157

CHAPTER 1

INTRODUCTION

1.1 Background

Recently, industrial design practice has changed addressing the complex problems related to societal and environmental issues, health and education. Industrial design has expanded its scope beyond physical products to systems, experiences, and services (WDO, 2015; Inns 2017). Following this change, today's industrial designers are required to develop new skills and knowledge in order to be able to play new roles in improving business and society through innovation (Inns, 2007; Press and Cooper, 2003; Norman and Klemmer, 2015). In parallel to practice, industrial design education has also faced this critical change with the concern of preparing students for these new roles (Glaser, 2017; Kiernan and Ledwith, 2014; Norman and Klemmer, 2015).

The recent literature on industrial design in Turkey, places much emphasis on the considerable rise in the visibility of industrial design practice and education (Balcioğlu, 2009; Alparslan and Borekçi, 2011; Doğu, Ögüt and Er, 2015; Hasdoğan, 2012; 2014; 2016; Kaygan and Kaygan, 2014). Although industrial design education has a history in Turkey more than 30 years, there has been a massive increase in the number of universities offering industrial design education in the past few years (Doğu, Ögüt and Er, 2015). Some universities in various cities of Turkey such as Istanbul, Ankara, Eskişehir, Izmir, Karabük, Bilecik, Konya include industrial design departments (Hasdoğan, 2016). In addition to the expansion in the number of industrial design departments, more students are accepted to these departments each year. In

2016, hundreds of new students started their industrial design education in 24 universities in Turkey (OSYM, 2016).

In addition to the growth in industrial design education, design activities and events within Turkey addressing industrial design students and professionals have also significantly increased after the 2000s (Hasdoğan, 2016; Balcıoğlu, 2009). Today, national exhibitions and fairs are frequently organized by various associations in Turkey as well as design competitions and awards (Tezel, 2011; Hasdoğan 2012). The number of national and international design conferences has also raised considerably with the efforts of industrial design departments of educational institutions and associations such as Industrial Designers Society of Turkey (ETMK), and Turkish Design History Society (Balcıoğlu, 2009).

Design workshops have taken up a significant portion of design events and activities in Turkey. Today, we see that there is a considerable rise in the number of workshops organized related to various design topics. Design activities and events, such as Istanbul Design Week, Istanbul Biennale commonly include design workshops in their programs. Also, both in 2014 and 2016, total 14 design workshops were organized as a part of Biannual National Design Research Conferences (UTAK), held by Department of Industrial Design at Middle East Technical University. Referring to the workshops in 2016, Börekçi, Özgen Koçyıldırım and Günay (2017) state that these workshops create an opportunity for students to participate related to their interest and learn new methods related to design. However, we know a little about industrial design students' interest and participation in design workshops.

In addition to the design workshops involved in other events, various foundations, such as Industrial Designers Society of Turkey (ETMK), Industrial Designers Association (ENTA), Design Foundation, TAK, YEKON, offer workshops for students, designers, and non-designers. These foundations organize workshops in different cities of Turkey. ETMK (n.d.) holds various workshops in Istanbul, Ankara, and Izmir; where the society has branches. Turkey Design Foundation (n.d.) frequently hosts workshops in Bodrum and Midyat covering a wide range of issues such as ceramics, glass, leather, furniture, papier-mache, textile, pattern and texture, local inspiration, and 3D-printing.

Emre Senan Design Foundation has run 40 workshops called Yahsiworkshops in Yahşibey, İzmir since 2006. For each workshop, ten design students are accepted among the applicants considering their interest in the workshop and evaluating their portfolios. During the workshops, young design students from different disciplines not only talk and produce design, develop design problems and solutions for them while working collaboratively, but they also accommodate, cook, clean and have fun together (Yahsiworkshops, n.d.). Besides, ENTA (n.d.) seems to run different workshops for industrial design students at various universities in Turkey.

Design workshops, in which design students participate, are also held in collaboration between foundations, universities and industry and industrial design students take part in these workshops. For instance, in 2017, Bodrum Geographical Inspiration: Furniture Design for Local Bazaar Workshop was run in collaboration with Middle East Technical University Department of Industrial Design (METU-ID), Design Foundation and Municipality of Bodrum by the participation of students of METU-ID (METU ID Bulletin, 2017). In the same year, Association of Inegol Furniture Manufacturers hosted the third annual 'I'm Design Furniture Workshop'. 38 industrial design students from 13 universities participated in the workshop, in which Özyeğin University Department of Industrial Design and Domus Academy collaborated as workshop facilitators. The workshop, funded by a company in the wood industry, took place in its manufacturing plant (Oygür, 2017).

Moreover, students themselves also seem to take a role in organizing workshops. When looking at the events and activities at universities, industrial design student clubs seem to organize design workshops often at their universities. Moreover, students from different universities collaborate for organizing workshops related to design subjects. For example, National Meeting of Students of Architecture (UMÖB) has been held once or twice in a year since 1993 by the participation of students from architecture and similar disciplines such as industrial design and city planning. For each event, students determine a team including students from various universities to decide in the context of next meeting and organize workshops related to it. In each event, approximately 100 students from different universities in Turkey come together in

workshops in order to meet, discuss, develop new ideas and expand their knowledge related to their profession (UMÖB17, 2017).

As presented previously, there is a growth in design workshops as well as other events and activities related to design. There are published studies on design fairs, design awards and design conferences (see for example Balcıoğlu, 2009; Hasdoğan, 2009; 2012; Tezel 2011). In master theses, the topics of design exhibitions (see Özçetin, 2008) and design competitions (see Dilek, 2017) were studied. However, despite the significance of the subject, we do not know much about design workshops in Turkey.

1.2 Aim and Scope of Study

Addressing this gap, this study regards design workshops as extracurricular activities and investigates the relation between industrial design students' participation in these workshops and their educational and professional development. Design workshops within this study refer to the events and activities related to a particular design subject in a determined duration, and include lectures and practices about that subject. Being extracurricular signifies that these activities are not part of the courses in industrial design curriculum and not compulsory within the formal education. This study focuses on the design workshops which industrial design students choose to participate in voluntarily whether they are held in universities or in other venues.

It aims to, first, capture the overall picture of industrial design students' participation in design workshops as extracurricular activities; second, present their experiences of workshop participation; and third, analyze how students interpret the contribution of workshops to their educational and professional development.

1.3 Research Questions

To fulfill the aim presented above, this study will answer the following research questions.

Main research question:

- How and in what ways do extracurricular design workshops affect the educational and professional development of industrial design students?

Sub-questions:

- What is the overall picture of industrial design students' participation in design workshops as extracurricular activities?
- What are the industrial design students' expectations from extracurricular design workshops?
- How student acquisitions from design workshops can be addressed in formal design education?

1.4 Structure of the Thesis

This thesis consists of five chapters. This chapter provides a brief introduction to the topic of the thesis and presents the aim of the study and research questions. Lastly, it introduces the structure of the thesis.

Chapter 2 presents the review of industrial design practice including the changes in the process, the scope, and the aim; the transitions in the role of designers and required skills and knowledge; the changes in industrial design education; students' self-development through self-regulated learning; extracurricular activities; and design workshops. After presenting the review of related topics to the study, the contribution of this study to the literature is discussed.

Chapter 3 introduces the research design of the study. The two research methods used within this study, descriptive questionnaire and semi-structured interviews, are explained in detail including selection of participants, conduct of the research and data analysis methods.

Chapter 4 presents and discusses the findings of the questionnaire and semi-structured interviews. The variety of design workshops; students' learning in workshops including learning environment, intense learning, learning from facilitators and peers; and professional benefits of design workshops will be introduced respectively.

Chapter 5 introduces the overall conclusions of the study. It also presents the limitations of the research and suggestions for future studies

CHAPTER 2

LITERATURE REVIEW

This chapter introduces the literature review of the relevant topics to the focus of this study. The purpose of this literature review is to provide a ground for the field research of this study which investigates the relation between industrial design students' participation and experiences in extracurricular design workshops and their educational and professional development. The literature review is presented in five main sections. First, the definition of industrial design is introduced with its evolving process, scope and aim. Second, the emergent roles for industrial designers are discussed. Third, current perspectives towards industrial design education are explained. Fourth, self-regulated learning as a design pedagogy is reviewed. Lastly, industrial design students' self-development through life-long learning is presented including the literature related to activities and design workshops. The chapter ends with the summary of the reviewed literature and highlights the significance of the research.

2.1 Industrial Design

Design is everywhere and affects everyone in every aspect of their daily life. It is a typical feature of being human and an essential agent of the quality of human life (Heskett, 2005). Similar to the other design fields, industrial design places the human in the center and increases the quality of human life by developing an understanding of user needs through empathy and fulfilling these needs (WDO, 2016).

There are different definitions of industrial design in the literature. In 2015, at 29th General Assembly in South Korea, World Design Organization (WDO), formerly known as International Council of Societies of Industrial Design (ICSID), redefined industrial design as follows:

Industrial Design is a strategic problem-solving process that drives innovation, builds business success, and leads to a better quality of life through innovative products, systems, services, and experiences (WDO, 2016).

While thinking through the previous industrial design definitions of WDO, it is seen that there are apparent changes in the context of the industrial design profession. Industrial design was a practice defined as a creative activity to determine the aspects of industrially produced objects, which are materials, mechanisms, shape, color, surface finishes, and decoration. The new definition of industrial design, on the other hand, puts emphasis on different two aspects of current design practice, which are presented below.

2.1.1 The scope of industrial design.

In the past, industrial design was only related to objects and its facilities such as form, function, materials, and aesthetics. Today, the focus of industrial design practice has moved beyond objects to systems, services and experiences (Inns, 2017; Norman and Klemmer, 2015). As this transition has taken place, industrial design puts culture and emotion in the center while attaching interest into complex systems related to societal issues, sustainability, health, and education (Norman and Klemmer, 2015). Moreover, at the same time, various business, public and social sectors express a growing enthusiasm in design as well (Inns, 2017). Similarly, Muratovski (2016) indicates that ‘industrial design is no longer used only in the context of objects, visuals, or spaces, or even for resolving specific problems’. Listening, asking, understanding and creating new possibilities for future are becoming more crucial in design while designers ‘currently engage in designing energy-saving products and processes, generate human-friendly environments, encouraging political participation and even reducing crime’ (p.14). As these examples illustrate, industrial design takes part in solutions for future from a broader scope.

Besides, industrial design is a process-oriented practice which involves systematic stages. The changing scope of industrial design has brought different dimensions to the design problems. The process and stages need to be tailored to the specific contexts of these problems. In each stage of the design process, different activities are performed, different tools and techniques are used, and a mix of creative and analytical thinking, various skills and knowledge are required (Carrol, Cavagnaro and Goldman, 2012; Leblanc, 2012).

2.1.2 The aim of industrial design.

Industrial design aims to foster innovation, to create business success and increase the quality of human life. Industrial designers are strategic actors of the innovation process while being in a position to connect varied disciplines and business interests (WDO, 2016). Within this context, industrial design addresses the arts and humanities, the social, physical, and biological sciences, engineering and business (Norman and Klemmer, 2015). Moreover, while creating business success, industrial design provides new value and competitive advantage across economic, social and environmental aspects. Industrial designers approach the problems user-centrally and develop an understanding of the needs of the human through empathy. To fulfill the needs of the users by products, systems, services, and experiences is essential for increasing the quality of human life (WDO, 2016). Besides, industrial design leads to social innovations by creating solutions to meet a social need and improving capabilities, relationships, and better use of resources (Gaulier-Gruce et al., 2012 as cited in Selloni and Corubolo, 2017)

This section has presented the definition of industrial design and industrial design practice from two aspects: the scope and the aim. First, the scope of industrial design expands beyond products with including services, systems, and experiences. As a result, new areas of industrial design such as design research, user experience design, integrative design, design for social impact and entrepreneurship have emerged (Shim, 2017). Second, the aim to create better futures with innovation, business success and high quality of human life define new roles for industrial design.

2.2 Emergent Roles for The Industrial Designers

As explained before, while industrial design practice evolves, the roles that industrial designers play changes. According to Inns (2007), there are six emergent roles for industrial designers. First, industrial designers have a role in creating or increasing the value of products, services or experiences. Beyond the commercial situations, designers consider ecological and ethical dimensions of value while taking decisions.

Second, people from various disciplines, from different user groups are being empowered to design. Designers have a role to include different thoughts of others in design processes. They need to enhance their facilitation skills in order to extend the participation of others' thinking in the process.

Third, the role of designer in visualizing was mainly related to physical products. In the emergent positions for design, designers need to visualize the abstract and intangible such as systems, experiences, emotions, relationships, and networks. Designers need to develop new physical and digital skills related to visualizing, modelling, and prototyping to overcome the challenges in their new role.

Fourth, since designers work in a world of complexity and ambiguity rather than a world of linear systems and mechanistic processes, they now have a role in explaining complexity to people. Besides, the complexity theory helps designers to understand their own roles.

Fifth, instead of only for a customer, a user or a client; designers create solutions for multiple stakeholders. They have a role as a mediator to address the perspectives, needs, and expectations of different stakeholders within a design solution.

Finally, while planning future outputs, designers should bring creative ideas in the early stages of design process. In order to do so, exploration of new technical and contextual sources becomes critical.

Inns (2007) also indicates that while designers fulfill these roles in contemporary industrial design practice; the core skills needed are creativity, synthesis and technical knowledge related to each design discipline.

Similarly, in their description of ‘the new designer’, Press and Cooper (2003) identify four main characteristics, which are intelligent maker, knowledge worker, sustainable entrepreneur, and active citizen (see Figure 2.1). According to them, the new designer is, first, an intelligent maker using craft skills and knowledge that concern physical materials or virtual spaces. With the help of their craft knowledge, they make things work and develop an understanding of quality, detail and sensual experiences. Creative problem-solving and reflective thinking are involved in their craft practice.

Second, they identify the new designer as knowledge worker. Creating knowledge, understanding and applying it through their practice is an essential part of designers’ work. As knowledge workers, designers need to develop skills in research and reflexivity and become active learners. Networking and communication skills are also required in the social process of creation and application of knowledge.

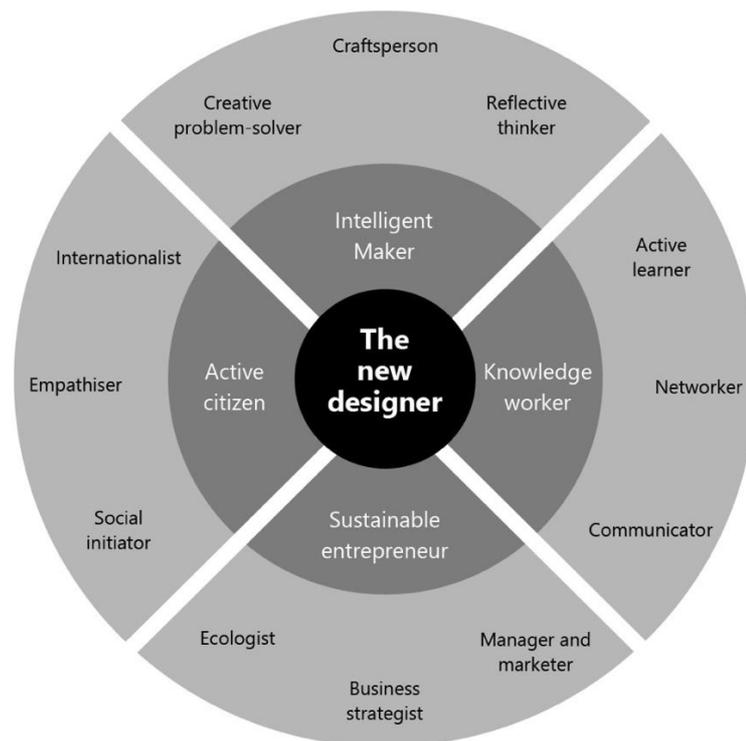


Figure 2.1 The New Designer (Press and Cooper, 2003, p.199)

Third, following the current patterns of work have been transforming people into ‘individual enterprises’, designers increasingly define themselves as sustainable entrepreneurs by linking sustainability and entrepreneurship. Thus, being a business

strategist is required while understanding sustainable business practice in addition to business, management, and marketing.

Citizenship, as well as design, requires empathy to the others who are linked through a set of rights and responsibilities. Then, fourth, as active citizens, designers should both understand the needs and ambitions of others and the essentials of sustainability. Designers should take decisions for the future of world without neglecting the needs of its inhabitants.

According to Heskett, industrial design practice has followed a layering evolution rather than a linear one during the history (as cited in Yee, Jefferies and Tan, 2013). While defining the new roles of the designers, it is essential to understand that different layers of approaches are constantly involved in and transforms the design practice. Instead of creating a linear change, the broadening scope of industrial design brings new dimensions to the discipline (Yee et al., 2013). During the transformation in the industrial discipline and the roles of designers, designers need to develop different skills and knowledge which are required at the different stages of design process (Inns, 2007; Leblanc, 2012; Carrol et al., 2012). Therefore, the primary role of the designers should be being 'thinker, planner, and coordinator of diverse skills' related to all the other roles described in this section (Cooper, Junginger and Lockwood, 2011, p.101).

This section has introduced the emerging roles for the industrial designers following the transitions in the current industrial design practice. Considering these new roles, industrial designers are required to develop new knowledge and skills during their education. For this reason, industrial design education also evolves in parallel to the requirements of the practice in order to equip students with necessary knowledge and skills. The next section presents the changes in industrial design education.

2.3 Industrial Design Education

The formal industrial design education trains students to develop skills and knowledge that are required for industrial design profession. Industrial design education is mainly based on 'learning by doing' method (Cooper and Press, 1995). Design projects constitute the core actors of the education and students work on specific design

problems or briefs during their training as industrial designers (Dorst and Reymen, 2004). Cooper and Press (1995) state that during the design processes through these projects, students acquire knowledge, develop skills and understand the context. First, students build required design knowledge such as properties of materials, manufacturing and forming methods, human factors, design trends and approaches, computer-aided design methods and processes, professional issues and practices. Second, students enhance their skills during different phases of the design process. Some of these skills mentioned by Cooper and Press (1995, p.21) are developing design solutions, creative problem-solving, analytic thinking through problems, researching information, evaluating solutions, aesthetic sensibility, visualizing through sketching, drawing and modelling, representing and communicating the ideas to others. Lastly, students develop understanding through different aspects of their projects within the contexts that include business awareness, marketing, sustainability, design ethics, design philosophy and current issues.

The required skills and knowledge of designers are presented by various researchers in the literature. As it is discussed before, the changing scope of design profession and different roles of industrial designers increase the variety of skills that designers need to have. Design Council (2010) points out that the skills that increase the value of designers in all sectors include creativity, flexibility, adaptability, communication skills, negotiation skills, and management and leadership skills. While design is increasingly used as a tool for innovation, productivity, and economic growth, these skills are linked to the appearance of new technologies, new industries, and new services as well as eliciting differently skilled people who can drive innovation.

Similarly, Hewitt (2012) underlines that design practice today, involves flexibility, the capability to adapt and employ arising methods and approaches. Therefore, designers should have an appropriate and useful mix of these skills and experiences. Yet, traditional education systems are becoming less capable of providing designers who have broadened the mix of these skills to the changing and converging industries (Muratovski, 2016). Although it seems a negative situation for designers, it can also be an opportunity for them (Design Council, 2010). This opportunity can be

interpreted that designers can prepare themselves for the changing industrial design practice by developing their skills beyond the formal industrial design education.

There is a general view in the literature that design education today is not strongly linked to the current industrial design practice. Despite the fact that industrial design education is also evolved in time, it is suggested that it should associatively follow the changes in the practice (Gajendar, 2003; Roald, 2006; Yang et al., 2005; Norman, 2010; Norman and Klemmer, 2015; Towers, 2013 as cited in Allen, 2013). Muratovski (2016) expresses that the form of 'old learning' will change into a form of 'new learning' for designers. The new learning will focus on novel problems faced in professional life considering the scope of the design practice instead of expanding detailed knowledge of a particular subject.

Similarly, Norman and Klemmer (2015) imply that design education at universities has a specialist approach. However, in the practical world, generalist designers who are able to build close collaboration with specialists are required to create successful products and services. They indicate that the knowledge on some particular subject limits designers' ability to create innovative solutions. Design generalists help to bring different understandings together by both sharing their knowledge in broader subjects and building connections with the experts related to one specific subject. Therefore, design education must transform its specialist approach into more generalist approach. Design students should develop knowledge related to different fields such as business and engineering, the social sciences and the arts.

Beyond the specialist and generalist designers, 'T-shaped' designers occur in design field (Brown & Wyatt, 2010; Mccullagh, 2010, Stevens et al., 2015; Smith and Furbershaw, 2017). The 'T-shaped' person involves both specialist and generalist approaches. Brown and Wyatt (2010) explain T-shaped person as a team member who possesses individual strengths in two dimensions. On the vertical axis of the 'T', a depth of skill in a specific discipline is required to be able to contribute to the outcome. The top of the 'T', on the other hand, is related to maintaining empathy and connections with other people and disciplines. Moreover, the horizontal axis is

represented as ‘openness, curiosity, optimism, a tendency toward learning through doing, and experimentation’ (p.34).

On the other hand, Smith and Furbershaw (2017) use the term ‘exploded T-shaped person’. They present their framework as creating beauty, ingenuity, charisma and impact (BICI) during the design process of values, connections, expressions and solutions. Within this framework, designers have an opportunity to work as a T-shaped person, an I-shaped person and an exploded T-shaped person. Different from Brown and Wyatt’s (2010) definition, they describe T-shaped person as generally skilled in all of the areas within BICI framework. I-shaped person, on the other hand, has deep expertise in one specific area but limited extension into other areas. An exploded T-shaped person (similar to Brown and Wyatt’s T-shaped person) seeks extended knowledge and skills related to one area while building understandings and connections through other areas. Designers' interest in one, several or all the domains make them a T-, an I- or and an exploded T- shaped person (Smith and Furbershaw, 2017). Boynton and Bole (2011) state that both T-shaped and I-shaped workers are required in the industry. However, being ‘an I- with a T-’ is essential to arrive at better results in business sector. Similarly, Mccullagh (2010) implies that designers should build new vertical collections of skills related to their problem domains instead of only building general knowledge and understanding of different domains. The generalist horizontal competencies with a weak vertical stack of capabilities are not useful for a T-shaped designer. Designers should define and build new vertical knowledge and skills related to emergent design disciplines while enlarging their horizontal skills (Mccullagh, 2010).

The presented literature above points out that both generalist and specialist skills and knowledge are required in the current design practice. From this point of view, students should be well-prepared with these skills and knowledge through their education for their professional careers (Kiernan and Ledwith, 2014). Therefore, there is an effort to advance design education through the requirements of current design practice in order to create new career opportunities for designers. (Yang et al., 2005; Kiernan and Ledwith, 2014).

Kiernan and Ledwith (2014) discuss three possible models of design education in order to equip students with the necessary skills to engage in a variety of design problems in professional life. In the first model of education, the generalist and specialist approaches are combined within a program. The knowledge and skills on problem-solving, and design thinking and processes that are applied in every design domain are offered as generalist part of the program. As specialist part of it, students are expected to develop specific knowledge and skills in a particular domain related to their studies during their studies. The second model, which is presented by Kiernan and Ledwith (2014), includes student projects in collaboration with other courses and partners from industry in design education in order to create an interdisciplinary learning environment for students. The last model is focused on the adaptation of self-directed and active learning approach to design education in order to empower students to be able to deal with the diverse, uncertain and complex design problems (Martinsuo, 2009 as cited in Kiernan and Ledwith, 2014). Besides, Kiernan and Ledwith (2014, p.221) indicate that design education changes into a more student-centered learning activity with the focus on ‘self-directed learning, collaborative learning and learning related to practice’.

Similarly, Towers (as cited in Allen, 2013) underlines the importance of the change in industrial design education while explaining the design education model at Parsons New School for Design. Design education should be structured to provide opportunities for students to self-direct their learning, collaborate with other disciplines, and develop understandings in subjects beyond the traditional boundaries of art and design. With the student-centered approach, students both shape their education with their decisions on learning various subjects and define their professional careers as designers (Towers, as cited in Allen, 2013).

In design education, as in many other areas of education, there is a shift from teaching-centered education to learning-centered education (Lee, 2006 as cited in Kiernan and Ledwith, 2014; Felip, Gual and Garcia, 2016; Sagitova, 2014). In learning-centered model, students as learners have an active role on identifying, planning and enforcing their own learning processes (Sagitova, 2014). Students have an opportunity to build knowledge, skills and experiences beyond their academic education and decide their

career paths related to their own interests (Lee, 2006; Kiernan and Ledwith, 2014). Ledsome and Dowlen (2007) also state that students need to develop their own goals through learning to shape their future lives regarded to their careers. In order to provide students with an opportunity to take significant roles in their own learning, industrial design education should promote independence by an exciting and dynamic curriculum (Crisp, Dale and Marsh, 2013).

Glaser (2017) proposes two design education models which are the funnel and the pond. In a funnel model education (see Figure 2.2), a variety of design students are formed into an image of a designer created by school. During their vocational education, students are expected to be at the same level of experiences and develop the same skill sets which are required for a few career opportunities. This model of education does not provide students an opportunity to develop different skills and knowledge to apply design in new ways. When students finish their studies at school, they have to compete against each other for a few job opportunities with the same skill sets.

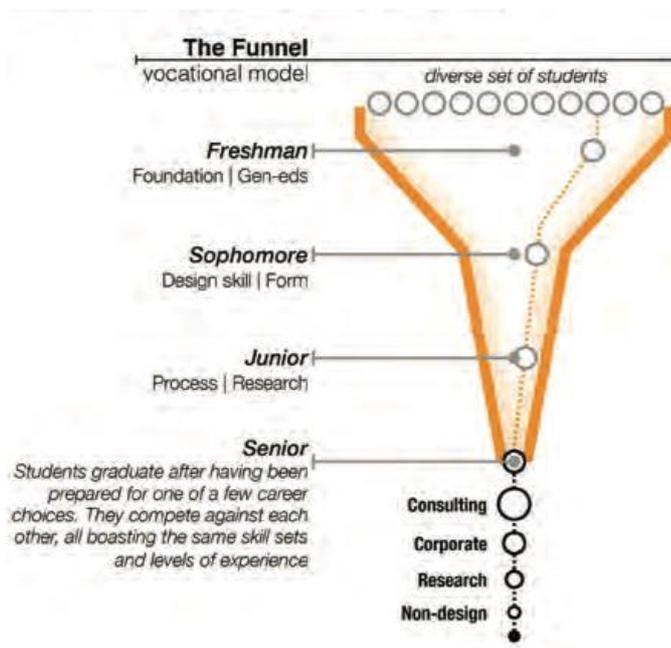


Figure 2.2 Educational Models: The Funnel (Glaser, 2017, p.36)

The pond model (see Figure 2.3), on the other hand, enables students to develop a variety of skill sets related to their diverse abilities and interests (Glaser, 2017). Students self-direct their educational experiences through selecting the subjects in a pond-model curriculum and interact and collaborate with other students in a community setting. Glaser (2017) also defines the pond model as ‘thinker-maker’ model while stating that the ‘designer’ is started to be known as intellectual maker or ‘thinker-maker’ encouraged with the will to create. Instead of molding students into one image of designer, the pond model education creates thinker-makers who mix design with some various domains such as science, engineering, art and humanities, politics and entrepreneurship.

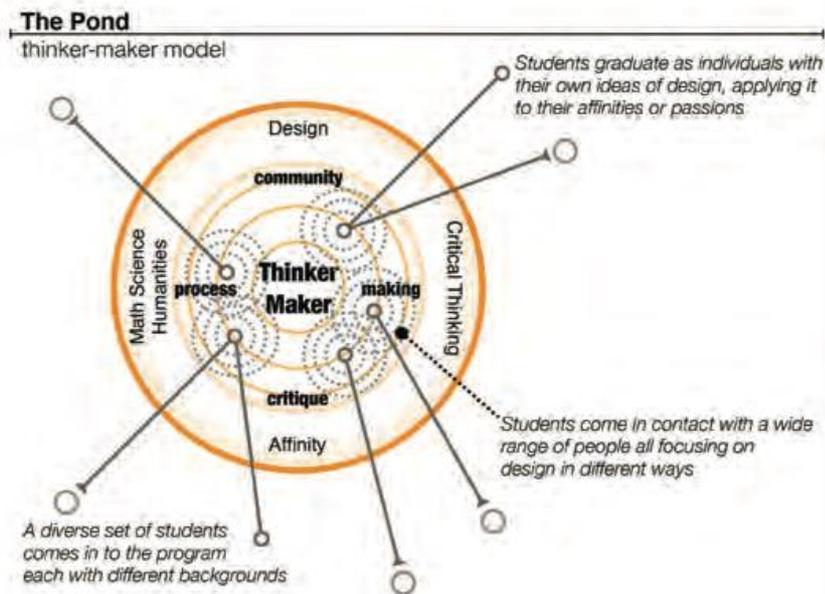


Figure 2.3 Educational Models: The Pond (Glaser, 2017, p.36)

Glaser (2017) underlines that there is a shift from the funnel model education to thinker-maker model of education by exemplifying the design education at Drexel University. Drexel has changed design education focus from practitioner to influencer. Students are educated to broaden their influences as designers by adding themselves new skills and knowledge beyond traditional design skills regard to their choices. With the emphasis on self-directed affinity in the design curriculum, students are empowered to create their own values as designers and change design into new

directions. Glaser (2017) also implies that the change in design education from vocation-driven to affinity-driven is fundamental in the changing scope of design profession. Since industrial designers self-select fields among a range of specializations from product design to UX design in their professional life, design students should also be able to choose their education considering their own abilities and interests.

Watts (2006, as cited in Trowsdale and Clark, 2013) identifies two primary requirements of career development learning. First, active involvement and engagements of students to learning are crucial, and interactive teaching and learning methods such as role play, problem-based methods and self-directed learning should be used during education process. Second, students need to encounter with ‘real’ cases and build direct communications with employers and experiences of work. Besides, Martinsuo (2009) voices that students should get involved in problem-based learning by work on real-world problems related to emerging issues of current design practice, and adopt new personal skills and knowledge while generating solutions. While students learn through a problem-solving process, students self-direct their learning related to the various aspects of the problem (Martinsuo, 2009; Kiernan and Ledwith, 2014).

2.4 Self-Regulated Design Learning

All of the studies reviewed previously underline the importance of students’ being in the center of industrial design education. Even being referred as learner-centered education, student-centered learning, self-directed learning or self-regulated learning, the focus of industrial design education, like other fields of education, evolves into learning more than training (Fischer, 2001). Shunk and Zimmerman (1998) describe ‘self-regulated learning’ as follows:

Self-regulated learning refers to individuals that control their own learning experiences by: (1) establishing a conducive work environment and using resources effectively; (2) employing various cognitive and metacognitive learning strategies to help make sense of information and experiences; (3) adjusting behaviors and emotions during academic tasks; and (4) adopting

positive motivational beliefs about one's capabilities, the value of learning, and the factors that improve learning (as cited in Powers, 2017, p.xxiii).

Similarly, Paris and Paris (2001) state that in self-regulated learning, students gain autonomy and control on their learning by monitoring, directing and regulating activities while they are retrieving information, extending expertise and improve themselves. Self-regulated learning enables students to enter into their own learning process actively (Powers, 2017)

Powers (2017) points out that meaningful learning comes from three critical determinants of self-regulated learning, which are (1) pro-active engagement, (2) choice, and (3) goals.

Pro-active engagement. Students' cognitive and behavioral strategies involve in pro-active engagement in their learning when they are able to construct, mediate or adjust expected outcomes within design learning. Design educators should give students opportunities to be able to negotiate the projects, and their goals and outcomes in order to increase students' involvement in design learning. Agency, autonomy and personal choice in design learning process are required to build pro-active engagement of students. Encouraging students to have control, ownership, and choices on the projects, influence design learning outcomes and makes them an active part of their learning. Besides, it increases their awareness of their own capabilities, thoughts, interests and actions.

Choice. Extending students' choices in the learning event and environment is a crucial element of self-regulated learning. Students' own choices within design learning retain ownership. Savery and Duffy (1995, as cited in Powers, 2017) indicate that while students are solving design problems, their engagement in the process increases when they own the problem. It can be achieved by design problems' being real-cases or students' interest and relevance in the subject.

Goals. Goals are the most required element of both self-regulated learning and problem-based design learning (Powers, 2017). Goals affect students' learning epistemically, motivationally, judgmentally, informatively and managerially. Students

need goals to shape their actions, thoughts and emotions through design process. Goals increase students' motivation to engage in learning and their degree of learning effort. Students can build self-assessment standards toward their progress and learn to judge outcomes of their studies through goals.

Additionally, Carneiro et al. (2011) state self-regulated learners, firstly, should be able to recognize the gaps in their knowledge and skills and fulfill their need to learn. Second, they need to make decisions on context, resources, time and duration of their learning. From and with whom they learned is also critical. Lastly, they should set and achieve their own learning goals by their and others' knowledge and experiences. Besides, during all these actions in self-regulated learning process, students should be able to maintain their motivations. Garner and Evans (2012) also indicate designers' skills and knowledge are not enough to produce creative solutions without motivation. Students need the motivation to navigate the scope of their design learning. Embracing failures, challenges and risks, building strategies for managing how to deal with different tasks, and self-evaluation of learning performances enhance motivation of students (Garner and Evans, 2012).

Powers (2017) implies that allowing students to select or modify their own projects, to set personal goals through their learning, and to choose relevant methods during the design process enable design education to foster self-regulated learning. Powers (2017) uses the term, 'self-regulated design learning', to explain using self-regulated learning strategies in design pedagogy. Self-regulated design learning uses students' prior knowledge and backgrounds to specialize the design projects for each student. Project-oriented and personal-oriented goals within the design projects should be discussed among students, and design educators and a path of students' developments in various knowledge and skills should be identified through the projects.

Powers' (2017) self-regulated design learning pedagogy has similarities with the new approaches towards design education which were presented in the previous section (see Section 2.3). Regarding the literature review related to the current design education, students are the main actors of their design learning while they are building required skills and knowledge for industrial design profession. Self-regulated design

learning can provide designers with various skills and knowledge instead of one type of designer in the design field (Glaser, 2017). Yee et al. (2013) underline the important role of design educators in changing profiles of industrial designers. Design educators should move beyond the traditional educational models to equip students to act as not only designers at various domains but also managers, facilitators, educators, entrepreneurs and communicators in the future. For developing students' future identities, design educators should work on a curriculum that embraces differentiation (Yee et al.,2013).

2.5 Self-Development Through Life-Long Learning

While witnessing the changing scope of industrial design practice, students' self-development becomes more crucial than before. Design students need to develop additional skills and knowledge beyond the ones offered in formal curriculum by educating themselves. Broadbent and Cross (2003) imply that rapid socio-cultural transitions emerge a need for life-long learning in design.

Muratovski (2016) expresses that while building a design career that can offer improvements to business and society, designers should evaluate their design skills in the long term considering the changes in the design practice. Having acceptable technical skills and a strong design style is no longer adequate for new designers to be successful in evolving design profession. They need to expand their skills and knowledge on various domains, especially research skills, to increase their capability to examine existing problems and solutions, analyze new problems, build alternative perspectives in today's competitive industry (Muratovski, 2016). In order to do so, developing students as life-long learners is also crucial as much as providing expertise in particular skills. Therefore, there is a considerable need to construct experiences and skills on active learning, integration and critical analysis in and beyond design education in order to prepare students for their future learnings for a lifetime (Holley, 2009).

Keane and Keane (2015) point out that design is a practice which learns from, engage in, and aims to contribute to the changing world by imagining new ideas and converting them into actions. By nature of design, life-long learning is a critical part

of design practice. Moreover, designers, as knowledge workers in 21st century (Press and Cooper, 2003), should be able to understand, apply and create new knowledge by their life-long learning skills during their professional life. Besides, Meister (2010, as cited in Dizik, 2017) points out that the job roles and definitions of knowledge workers change simultaneously during their career and they need to be continually developing new skills depending on what is going to make them more employable in the changing work life. In order to adapt rapidly evolving new job descriptions including new technologies and tools, they need to change their mindsets of life-long learning to become continuous learners. (Yang et al., 2005; Meister, 2010 as cited in Dizik, 2017)

Similarly, Fischer (2001) describes life-long learning as a mindset or a habit that people need to acquire. New aspects of learning such as self-directed learning, learning on demand, informal learning and organizational learning have an influence on people's mindsets related to self-development. Life-long learning mindset is about seeking information, enjoying new challenges and working to provide useful alternatives to changing situations (Keane and Keane, 2015). Fischer (2001) also states that life-long learning is beyond adult education or training and different from traditional formal education shaped by curricula and exams. Life-long learning of individuals are formed by themselves, and the outcomes of their learning are self-assessed. New topics to learn arise inconstantly from various situations in life and learners actively construct new knowledge through various topics. The roles of educators also change from truth-tellers or oracles to coaches, facilitators and mentors while learners build knowledge instead of acquiring it. Besides, learners should expend their effort to adopt a positive attitude, enjoyment and motivation towards learning in order to be able to sustain it during their whole life (Fischer 2001).

Creighton and Granville (2013) point out that, according to The European Commission's 'Key Competencies for Lifelong Learning' framework, life-long learning not only provides personal development and active-engagement into society but also increases capabilities of communication, information processing and working with others to become successful in changing work life. Creighton and Granville (2013) also argue that life-long learning skills are shaped by more than formal curriculums of schools. Students should take advantage of other opportunities than

formal education, offered by economic and social institutions by participating their activities. In other words, students should develop skills and competencies by extending their learning beyond school. Within the context of self-development through life-long learning, students' participation in extracurricular activities seems to have a role in providing students an opportunity to enrich their knowledge and skills also out of school. The following section presents the literature related to extracurricular activities in higher education.

2.5.1 Extracurricular Activities

Brown-Liburd and Porco (2011) underline that a typical undergraduate student spends more of their time on building knowledge, understandings and experiences out of the formal learning environment. For this reason, extracurricular activities are becoming important for students to develop new skills and knowledge through their lives. There are many definitions of extracurricular activities in the literature. By reviewing various definitions; Bartkus et al. (2012) describe extracurricular activities as follows:

Extracurricular activities are defined as academic or non-academic activities that are conducted under the auspices of the school but occur outside of normal classroom time and are not part of the curriculum. Additionally, extracurricular activities do not involve a grade, or academic credit and participation is optional on the part of the student (p.698)

Bartkus et al. (2012) also classify extracurricular activities as direct and indirect. Direct extracurricular activities, such as club and association activities and competitions, are more closely connected to students' formal curriculum. On the other hand, indirect extracurricular activities, for example, playing in the school band, are relatively unrelated to their formal studies. Hardy (2012) indicates that there is an increase in recognition of extracurricular activities which directly related to the formal curriculum in schools. Similarly, Derous and Ryan (2008) mention that students can benefit from extracurricular activities in an autonomous way, which are relevant for their studies, regarding their academic outcomes and preparation for the work life.

Chisiu (2013) explains extracurricular activities as a conflict of 'formal non-formal education' since educational curriculum has influences on the actions in direct extracurricular activities organized either in school or out of school. Extracurricular activities should have learning objectives, out of the objectives of formal curriculum, while offering students specific learning experiences. Chisiu (2013) presents the educational objectives of extracurricular activities as: (1) to enhance and broaden the extent of knowledge, (2) to build a ground for students' practicing and improving of some skills, (3) to relax participants and help them spending their leisure time in an organized way, and (4) to ensure professional evolution.

Roulin and Bangerter (2013) imply that extracurricular activities, as well as internship, offer students an opportunity to autonomously develop soft skills beyond their hard skills provided by technical education. Besides, their personalities and their values are also influenced by their extracurricular experiences. Students build life skills and characteristics such as a strong work ethic, self-confidence, dedication, internal locus of control. Students interactions with a peer group and being a member of them also improve their social status (Broh, 2002 as cited in Seow and Pan, 2014) Regarding these aspects of extracurricular activities, Roulin and Bangerter (2013) state that students increase their personal capital by their participation in extracurricular activities.

Ming Chia (2005) states that there is a direct relation between students' emotional intelligence, academic performance and participation in extracurricular activities. Extracurricular activities have a potential to increase students' non-technical soft skill competencies such as leadership skills, organization skills, interpersonal skills and teamwork. These skills shape students' emotional capacities that are linked to emotional intelligence. Ming Chia (2005) also points out that students can also benefit from extracurricular activities related to their future job opportunities. Since new skills and knowledge beyond technical competencies are required to be employable in the changing work life, a candidate with high level of participation in extracurricular activities would be able to handle situations during job interviews better. Similarly, Roulin and Bangerter (2013) state that students use their participation in extracurricular activities to distinguish themselves in a job application from their

competitors. For this reason, students may be more excited to participate in extracurricular activities since they can add them into their resumes.

2.5.2 Design Workshops

Despite the absence of a definition in design literature, it can be said that design workshops cover a variety of techniques and skills within the large extend of design practice. Ruohui (2016) states that workshops have significant roles in practical training processes in current design education activities. Ruohui (2016) divides design workshops into two models. The first model of workshops is organized by some design schools as an event to provide an opportunity for academic meetings. The second model, on the other hand, is held by industrial parks, business organizations and creative associations.

Martin and Hanington (2012) present design workshops mainly as a research method in design process. They indicate that in design workshops, as a form of participatory design, several participants work with designers in organized sessions and apply co-design methods. Design workshops include techniques such as collage, mapping or diagramming activities in order to understand the perspectives of participants as ‘users’. The participants either can be a part of a collective design solution or only evaluate concepts, offer feedback and share their opinions about a design solution. According to them, designers benefit from workshops in generative research.

O’Kane (2012) identifies workshops as an efficient way to establish a common ground between different disciplines, such as design and engineering. Within the context of design-driven innovation process (WDO, 2016), building a bridge between different thinking styles is essential for creative solutions.

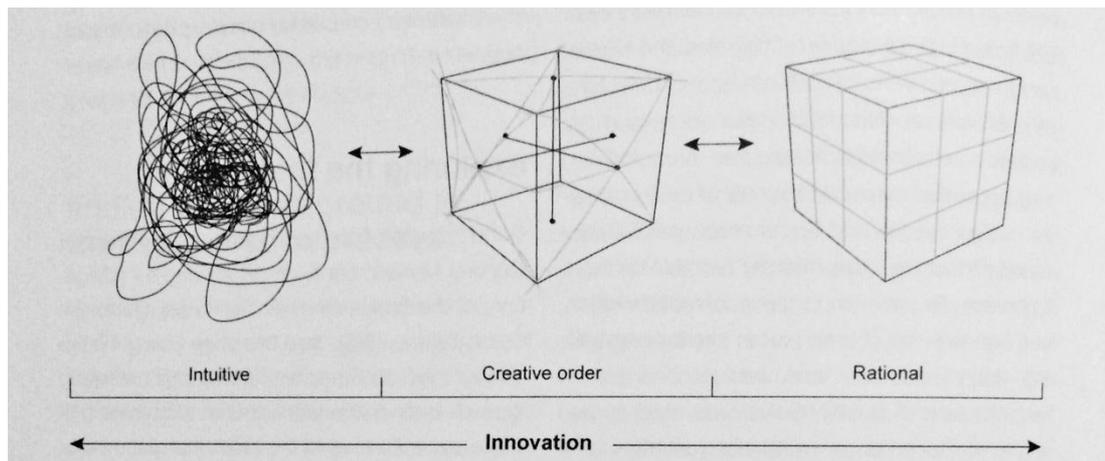


Figure 2.4 Thinking Styles and Creative Order Between (O’Kane, 2012, p. 402)

According to O’Kane (2012), workshops offer an opportunity to create unpredicted outcomes by combining intuitive and rational thinking of designers and engineers (see Figure 2.4). In workshops, people from different backgrounds work simultaneously on a shared goal and the collaboration between them encourages innovation. Moreover, designer-hosted and engineer-hosted workshops help the participants to develop a deeper understanding of other’s thinking and work. O’Kane (2012) underlines the importance of the interaction and collaboration between participants in order to both develop innovative solutions in workshops and enhance the knowledge on other disciplines’ priorities and processes.

Martin and Hanington (2012) emphasize that design workshops can also be useful for participants. Design workshops are increasingly used to equip participants with the skills and knowledge on the methods and processes of design and design thinking. People who are common to or interested in design research, ideation, thinking and methods such as designers, design students, people from business participate in design workshops. Design workshops mainly focus on producing ideas and hands-on design activities. Martin and Hanington (2012) present a typical workshop process as: (1) A workshop starts with introducing the subject, and presenting the program and scope of the workshop; (2) Participants involve into group discussions with other team members in the guidance of facilitators of workshops; (3) Individual ideas and perspectives are shared among team members, and participants can work individually

or collaboratively in teams in order to achieve the outcomes of the workshop; (4) the completed outcomes, such as affinity diagrams, collages, drawings, mock-ups and story-boards, are presented to other participants.

Szuc and Wong (2011) state that design workshops should provide participants with meaningful experiences by its atmosphere. In order to promote creativity, openness and collaboration in workshops, facilitators should make workshops and its environment ready from different aspects. First, facilitators should construct the workshop program including activities, timelines, and expected outcomes from participant. Moreover, the venue of workshop should be set up regarding the activities and the number of participants. Facilitators' approaches and attitudes toward the subject and participants have an influence on the workshop experience. Szuc and Wong (2011) also recommend facilitators to prepare themselves for the workshop as well as other dimensions. They indicate that it is necessary to have the energy and skill set to facilitate a workshop. Facilitators should be able to create an environment that offers participants to create and work together.

2.6 Summary

The literature review, first, presented the current definition of industrial design by putting emphasis on the changes in process, scope and aim. Second, emerging roles for designers were discussed in parallel with the transitions in industrial design profession. Considering their 'new' roles, today industrial designers are expected to possess a broad range of skills and knowledge related to a diversity of subjects as well as design. The reviewed literature argued that formal industrial design education is becoming inadequate to equip students with the required skills of the profession. Therefore, industrial design education is also going through a change in relation to the transitions in the profession. The reviewed literature demonstrated that there is an increase in student/learner-centered approaches in design education. Students are expected to take an active role in their own learning in order to adapt their skills and knowledge to the emerging requirements of the profession. Students' self-development by directing their own learning is becoming crucial regarding the diversity of skills and knowledge that they are required to develop. In today's evolving

needs and competitive business, industrial designers are needed not only to enhance their knowledge and skills during their formal education, but they also should expand their learning through a lifespan. Along with the others discussed in the literature, building life-long learning skills is highlighted considering its contribution to students for adapting their competences to emerging needs of profession. Designers, as ‘knowledge workers’ (Press and Cooper, 2003, p.198), develop new skills and knowledge by forming a life-long learning mindset to follow the transformations in new technologies, tools and methods.

Regarding life-long learning mindset, students’ self-development through extracurricular activities becomes significant. Addressing the focus of this study, the reviewed literature related to extracurricular activities and design workshops were introduced. Extracurricular activities are considered to play a role in students’ self-development by providing a ground to practice and enhance some additional skills than the ones they develop in formal education (see for example Chisiu, 2013; Ming Chia 2005; Roulin and Bangerter, 2013). Although various researchers have studied student acquisitions from extracurricular activities, there is a lack of systematic research focused on especially design workshops as extracurricular activities from the perspectives of industrial design students.

Moreover, in Turkey, there is a massive rise in the number industrial design students following the increase in industrial design departments in educational institutions. At the same time, we witness a considerable rise in the number and variety of design workshops held in Turkey addressing industrial design students. However, we know a little about students’ interest and participation in these workshops. Additionally, there is a lack of systematic research focuses on industrial design students’ experiences in design workshops in design literature. This study aims to fill this gap in the existing literature by concentrating on the relation between design workshops as extracurricular activities and industrial design students’ educational and professional development through students’ perspectives.

This chapter has reviewed the relevant literature and emphasized the significance of this study. The research design of the study will be introduced in detail in the next chapter.

CHAPTER 3

METHODOLOGY

This chapter discusses the two research methods used together in this study, which are the questionnaire and the semi-structured interviews. In this chapter, the design of the research which includes these two methods will be presented. First, I will explain the questionnaire in detail including the design of the questionnaire, sampling, conduct of the questionnaire and the analysis process of the data collected through this method. Second, I will present the semi-structured interviews by explaining the design of the interviews and the interview guide, the selection of the interviewees, data collection and data analysis process of the interviews respectively.

3.1 Research Design

In order to reach the aims of this study, the empirical data was collected using two research methods: descriptive questionnaires and semi-structured interviews. In the first stage of the research, data was collected from 315 students regarding the workshops they attended and their opinions about these workshops. In the second stage of the research, it was aimed to discover students' workshop experiences and their interpretations, and understand the effects of workshops on students' educational and professional development by conducting semi-structured interviews. In the following sections, I will explain these two research stages in detail.

3.1.1 Questionnaire

The first stage of the study is the questionnaire. As Matthews and Ross (2010, p. 201) describe, the questionnaire is a standardized format which is utilized to collect structured data from a large number of cases. Gathering data from a large number of industrial design students about the workshops that they attended is the first step to have a general understanding of students' interest and participation in workshops. The questionnaire method is found appropriate considering the total number of participants being more than 300.

Although questionnaires are commonly used in quantitative research, they are also often used as a part of qualitative studies. Gray (2009) distinguishes between analytical and descriptive questionnaires. According to this, analytical questionnaires have experimental, quantitative research characteristics and prioritize reliability of data and statistical outcomes. On the other hand, descriptive questionnaires use an inductive approach and aim to explore perspectives by using open-ended questions. In this research, descriptive questionnaires with open-ended questions are used in order to collect data regarding the workshops that industrial design students attended and their perspectives on these workshops.

There are three purposes of using questionnaire within this study. The first purpose is to build up an overall picture of industrial design students' participation in workshops. In order to fulfill this purpose, I used questionnaires to gather data from the students about their interest and participation in the workshops organized as extracurricular activities, which have been increasing in recent years. The nature of the questionnaire allowed me to collect data about this subject to understand the context better from a large number of students who did and did not attend any workshop.

The second purpose of the questionnaire is to provide ground for the second stage of research which is semi-structured interviews. According to McGuirk and O'Neill (2016); questionnaires can be integrated efficiently with in-depth forms of qualitative research to determine more comprehensive perspectives on the context of the research. In this study, the questionnaires are also used to select the participants of interviews as explained below (see Section 3.1.2.2).

The third purpose of the questionnaire is to be used as a probe during interviews. While conducting the semi-structured interviews, the responses of questionnaires were used to ask in-depth questions to the participants in relation to the information which they mentioned in the questionnaire (see Section 3.1.2.3)

3.1.1.1 Design of the Questionnaire

The questionnaire consists of three parts (see Appendix A-Questionnaire). The first part introduces the scope and the aim of the study. It also underlines that the contribution of the participant is important for this research and the data gathered from this questionnaire will be used with academic purposes without sharing any personal information.

The second part of the questionnaire consists of five open-ended questions. Fink (2003) mentions that qualitative surveys which include open-ended questions have advantages to reach comprehensive information in the respondents' own sentences. The responses to these open-ended questions provide in-depth data by respondents' own opinions and experiences.

First, participants were asked to indicate their university and the grade they are studying. The first question is formed as a table, which demands information about the name, the subject, the facilitator, the time, the duration and the venue of the workshops that they have attended. In this question, students were asked to list the workshops they attended as detailed as they remember. Even if the participants could not remember (or reach) all the information about the workshops, they were asked to provide sufficient information about which workshops they attended. In the second question, the participants were asked to specify their favorite workshops with the reasons explaining their satisfaction.

Since this study aims to discover industrial design students' participation in workshops, students who have never participated in a workshop were also asked to specify the reason for not doing so in the third question.

The fourth question aimed to discover the workshops that students are interested in even if they could not participate in. They were asked to give detailed information

about the title, the subject, the convener, the date and the reason for their not attending. After the questionnaire conducted with the students of Middle East Technical University, it was seen that students had difficulties in recalling the information about the workshops which they would like to attend and most of the students did not answer that question. For this reason, after the first round of data collection, this question was modified to ask which potential workshops they might be interested in considering their subjects.

Students' participation in other extracurricular activities such as seminars, conferences, and extracurricular courses were asked in the fifth question. This was because getting familiar with other extracurricular activities was thought to help understanding the tendencies of industrial design students to attend extracurricular activities.

The final part of the questionnaire informs participants regarding the second stage of the study. In this part, the aim of the interviews was explained to participants, and they were asked to share personal contact information (name, surname and e-mail information) if they volunteer to participate in and contribute to the second stage of the study. Participants were also informed about the estimated duration of interviews and that the interview date and time will later be set face to face or online (via Skype) depending on their preferences.

3.1.1.2 Population and Sampling

The questionnaire is conducted with industrial design students. Since as Hasdoğan (2016) mentioned that 30 universities in Turkey offer industrial design education, it is not possible to cover all of them within the scope of a master's thesis. As a result, a smaller sample group is selected from this population.

In qualitative research, selecting the participants purposefully has benefits to figure out the problem and the research question (Creswell, 2009). In this study, the participants of the questionnaire are selected deliberately in order to collect data from a diverse sample of the industrial design students considering their universities and the level of undergraduate education.

Since the workshops are diverse in terms of the subject, time and location, collecting data from different cities was important to understand the situation in Turkey from a wider perspective. As a result, three cities are selected. Istanbul and Ankara are decided because most of the industrial design departments in Turkey are located in these cities. Out of 30 industrial design departments, 15 of them are in Istanbul, and four of them are in Ankara (ÖSYM, 2016). As well, design related activities are high in number in these cities. Eskişehir is selected because it is observed that the students of Anadolu University tend to travel to other cities in order to participate in design workshops. Moreover, the industrial design departments are relatively older in these cities compared to other cities.

Considering the large number of the undergraduate students in the various universities in Ankara, Istanbul, and Eskişehir, it is decided to narrow the sample by choosing universities based on their student numbers and for practical reasons. Istanbul Technical University and Bahçeşehir University from Istanbul, Middle East Technical University and Gazi University from Ankara; and Anadolu University from Eskişehir are selected because they are relatively older in industrial design education than others, and they have a higher quantity of students compared to recently established departments.

Another selection criterion is about the industrial design education level of the participants. The third, and fourth year of industrial design students in these departments are selected to answer the questionnaire. The first and second-grade industrial design students are excluded on purpose considering that being at the beginning of their undergraduate education they did not have much chance yet to participate in many workshops. The third and fourth-year students, on the other hand, are at a more advanced level in industrial design education considering the duration of their studies which might allow them to participate in more design related activities.

3.1.1.3 Conduct of the Questionnaire

Although postal questionnaires and online questionnaires are also commonly used to gather data from large numbers of participants, I decided to conduct delivery and collection questionnaire method. Gray (2009) explains delivery and collection method

as the questionnaires are distributed by hand to the participants and collected later. He states that the direct contact with potential respondents in delivery and collection questionnaires might cause a higher rate of completed questionnaires by participants.

As the researcher and the potential participants are in different cities, it required a considerable amount of time and effort to reach to the participants in Istanbul and Eskisehir. Despite its difficulties, conducting delivery and collection method in questionnaires provided me to have direct contact with the participants who attended a high number of workshops and are willing to participate in the interviews. As a consequence, I had the chance to conduct the interviews with the participants after collecting the questionnaires.

In order to get access to as many students as possible in these departments using delivery and collection questionnaire method, third and fourth-year studio courses are found appropriate as the research focus. Creswell (2009) states that undertaking the approval of gatekeepers is important because they allow the researcher to access the research site and the potential participants. In this study, the faculty staff of the selected departments are the gatekeepers. In order to get access to the students, I first contacted the faculty members, either the head of departments or the studio tutors and via e-mail, informed them about the aim of the study and the data collection method. The soft copy of the questionnaire was also shared with the instructors in order to explain the study in detail. I asked permission for attending a studio session and share my questionnaire with the students who volunteer to answer in a suitable date for them and their course flow. The third and fourth-grade studio courses' tutors from the five universities responded the e-mails positively and the dates and times for the studies were scheduled.

After receiving permissions and scheduling the date and the time for the study, I was ready to conduct the research before the course started. I met with the tutors and explained the study in detail again face to face. All the tutors were interested in the research, and they were welcoming. They asked questions about the research and the progress, and they had a supportive attitude towards the research. After the instructors introduced me to the students, I explained the aim of the study, answered the questions

in general and thanked for their contribution in advance. Even though it is written in the questionnaire form, I informed them about the interview phase of the study, and I declared that the data gathered from the questionnaires and interviews would be used only for academic purposes by anonymizing and their personnel information would not be shared with the third parties. I kindly asked them to share their contact information to arrange an interview date with them. Next, the printed copies of questionnaires were distributed, and I waited for students to complete. It generally took five to 15 minutes for students to complete the questionnaires. Some of the tutors preferred to immediately begin the class after the explanatory speech and let me stay in the studio. When this was the case, it took 4-5 hours for students to complete and hand-in the questionnaires. I always stayed with the participants to answer their questions if they have any. Participant students were mostly willing to contribute to research and asked detailed questions about the research and workshops.

As I am working as a research assistant at Middle East Technical University, the first study was conducted there because of accessibility. After the first study, the following studies were conducted in the universities in this order according to the responses of tutors: Anadolu University, Bahçeşehir University, Istanbul Technical University and Gazi University.

There are different numbers of participants from each university based on the number of students who are registered to studio courses. Total number of completed questionnaires is 315 as shown in Table 3.1. In this table, the distribution of participants in these five universities is also demonstrated.

Table3.1: Distribution of Participants in Different Universities

Universities	Numbers of participants		
	3 rd grade	4 th grade	Total
Anadolu University	34	52	86
Bahçeşehir University	27	26	53
Gazi University	18	19	37
Istanbul Technical University	29	27	56
Middle East Technical University	36	47	83
Total number of participants			315

3.1.1.4 Analysis of the Questionnaire

The data collected from the questionnaires are analyzed both quantitatively and qualitatively. A descriptive analysis was made to come up with the numbers of students who did and did not participate in at least one workshop and the total number of workshops which students participated in. Numbers have shown that the majority of participants participated in at least one workshop. This data is also crucial for the significance of this study as it reveals the broad interest in workshops by industrial design students.

In the questionnaires, each participant listed the workshops they have attended. The mentioned workshops are various in number and context. The numbers of students' responses are shown in Table 3.2.

Table 3.2: The Distribution of the Quantity of Workshops That Students Participated in

Number of workshops	Anadolu University	Bahçeşehir University	Gazi University	Istanbul Technical University	Middle East Technical University	Total
12	0	0	0	0	1	1
11	0	0	1	0	0	1
8	0	0	1	0	1	2
7	5	1	0	1	0	7
6	8	0	1	2	2	13
5	9	2	4	0	2	17
4	12	4	8	4	3	31
3	11	7	10	6	4	38
2	20	15	6	7	4	52
1	11	15	5	15	20	66
0	10	9	1	21	46	87

3.1.2 Interview

The second phase of this research is semi-structured interviews. As Lichman (2014) describes, individual interviewing is a general term used for a sort of methods that allow the researcher to engage in a dialogue or conversation with a participant which is directed by the researcher. Semi-structured interview is one type of individual interviews.

Semi-structured interviews are used to gather the qualitative data when the researcher is concerned with peoples' experiences, behavior, and understandings (Matthews & Ross, 2010). As this study aims to learn about students' workshops experiences and its effects on students' educational and professional development, I chose to conduct

semi-structured interviews within this study. Below, I will explain the design of the interviews, participants of the interviews, the details of the conduct of the interviews and data analysis of the interview data.

3.1.2.1 Design of the Interview

Before the interviews, I prepared an interview guide that consists of interview questions. The answers given to the questionnaire were also utilized in the preparation of the interview guide. After conducting the questionnaire which I explained in detail above, I listed the workshops mentioned by the participants in spreadsheets by using Microsoft Excel (see Appendix B-Questionnaire Data Sheet) and I read all the answers of participants to the open-ended questions of the questionnaire. This helped me to understand the diversity of workshops and different ideas of participants towards these workshops and add questions the interview guide (see Appendix F-Interview guide) in the light of the data gathered from the questionnaires. For example, after recognizing the variety of workshops that students mentioned in questionnaires, I decided to ask their criteria for their workshop selection.

The main purposes of interview questions are to learn about participants' experiences on workshops and to understand their points of view, motivations, and expectations related to the workshops. First of all, I asked participants to give information about the workshops and their specific features, and to tell about their experiences in these workshops. Second, I asked questions to understand the reasons of their participation in these workshops, and how they decide to attend the workshops. Additionally, how the participants hear about the workshops was also asked. Third, I questioned the negative and positive opinions of participants linked to the workshops they attended. Fourth, I asked questions about what students gain from workshops to understand how they expect to benefit from workshops in both their current education life and future professional life. Finally, I asked them whether they would like to convey a workshop in the future or not, and, the features of the workshops which they might design.

The interview guideline provides the structure for the interview by putting questions in a particular order. However, in the use of semi-structured interviews, as Gray (2009) states, during each interview the number of questions and the order of questions may

change following the route that the interview takes. As new issues appear during the interview, the researcher may ask new questions to cover them. Therefore, the structure of the interviews is convertible considering the interviewees responses to explore the new arising issues in depth. While I conduct the interviews, I used the interview guide to cover all the core issues, but considering the new arising issues, asked new questions to detail the information provided by the participant.

3.1.2.2 Selection of the Interviewees

While collecting qualitative data, the participants who have experiences on the main phenomenon are selected by using ‘purposeful sampling’ (Creswell, 2009). As a result, the selection of interviewees within this study is carried out purposively considering their workshop participation. Regarding the aim of the interviews in this study, it is critical to conduct the interviews with the participants who have attended in a higher number of workshops to collect a broader data related to their experiences and opinions.

In order to select the participants for the interview, I listed the participants of the questionnaire in order of the numbers of workshops that they attended (see Appendix D-Selection of Interviewees). The names and the e-mail addresses of the participants whom would like to contribute the interview phase of this study and the universities which they were studying were added to this list. Then, I started to contact the potential participants of the interview via e-mail. In the e-mails, I introduced myself and the study that I was working on. I reminded the questionnaire that I conducted with them in their studio classes, and explained the interview phase of the study and the content and the foreseen duration of the interviews. I asked to arrange a suitable time and place for interviews. I kept contacting the potential participants in the list from top to bottom until I got an adequate number of interviews arranged.

Table 3.3: The Numbers of Workshops Which the Participants of the Interviews Attended

number of workshops	number of participants
12	1
11	1
8	2
7	5
6	4
5	7
4	6

In the selection of the interviewees, I prioritized not only the numbers of workshops which they participated in but also the universities that they were studying at. In order to obtain the diversity of participants, I selected participants from different universities. The distribution of participants according to the universities is shown in Table 3.4.

Table 3.4: The Distribution of Participants According to the Universities

Universities	The number of participants
Anadolu University	5
Bahçeşehir University	5
Gazi University	6
Istanbul Technical University	4
Middle East Technical University	6
Total	26

Overall, 26 participants are selected from among the 228 questionnaire participants who participated in at least one workshop.

3.1.2.3 Conduct of the Interviews

For the interviews, I followed the order of conducting the questionnaires in the universities respectively. First, I carried out a pilot interview with a student from METU who was willing to participate in the study. This pilot interview provided me with an opportunity to test the interview questions and gain initial experience in interviewing as a researcher. However, this interview was not included in the analysis of the data because the interviewee's participation in workshops was quite fewer than the other interviewees'. After the pilot interview, six main interviews were conducted face to face with selected METU students.

Second set of interviews was conducted with the students of Anadolu University. The date and the time of the interviews were arranged with the participants. One of the interviews was conducted in Ankara, and, for the four of the interviews, I traveled to Eskişehir in order to conduct the interviews face to face. An available classroom at Anadolu University was used for the interviews.

The interviews with the students of Bahçeşehir University were carried out online via Skype. At the arranged dates, five interviews were conducted in video calls. Although there are some problems related to the internet connection, online interviewing helped to overcome geographical constraints.

For the participants from Gazi University and Istanbul Technical University, all the interviews were arranged immediately after conducting the questionnaires. After collecting the questionnaires, I asked students who attended highest number of workshops to schedule an interview date. Some of the students were willing to participate in the interviews at that moment, for this reason, some interviews were conducted following the questionnaires. The rest of the interviews are carried out face to face, another day.

The duration of the interviews changed between 15 to 80 minutes. The interview guide (Appendix F- Interview Guide) was used during interviews to cover all issues of the research, but there might be some changes in the order of the asked questions considering the responses of the interviewee. The questionnaire responses of the

interviewees were present in the interview in order to use as a probe. While interviewees are giving information about the workshops which they attended, their answers to the questions of the questionnaire helped them to remember what they mentioned and detail the answers. For example, when some of the interviewees mentioned that they did not have any answers to some questions, I offered them to look at their responses to the questionnaire. After checking their responses, they started to give examples about each workshop which they listed considering the context of the question.

Furthermore, I realized that when I use the questionnaire responses in the warm-up questions and ask them to tell more about what they experienced in each workshop, students provided more detailed information during the interviews. Moreover, sometimes students could not answer some questions in the first place, but when they looked at their responses to questionnaire, they recalled their experiences on the related workshops and answered the questions.

All the interviews were audio recorded with the consent of the participant. The participants were informed about the process of interview, and the audio recording and they were asked to sign the consent form (Appendix E-Consent form) before the interviews. In addition to the audio record, note taking was also used to catch up the responses of the interviewee, and these notes helped me to ask additional questions to detail their responses.

3.1.2.4 Analysis of the Interviews

After collecting data through interviews, the audio records of the interviews were transcribed in order to be used in qualitative data analysis. Then, qualitative analysis of the transcribed data was performed by using ‘thematic analysis method’. Matthews and Ross (2010) define thematic analysis as a process of identifying and interpreting the key ideas or themes by remaining in touch with the raw data. The data should be interpreted, summarized and categorized by returning to the raw data several times throughout the analysis process. Moreover, the raw data should be investigated in different ways and different pieces of the data within each case should be linked to create a whole understanding of the emerging themes.

During the qualitative analysis process of data collected in the interviews, first, I coded the transcribed data and created an initial list of the raising themes by categorizing the codes in consideration of my interpretations and understanding of each batch of data. Then, the list was revised considering the order of themes and their relevancy with the aim of the research. The findings were organized around the main categories of themes, and the quotations of the interviewees were selected to illustrate the main themes. Lastly, the selected quotations were translated into English.

In the following sections, I will present the data analysis process in detail starting with the transcriptions of the interviews.

3.1.2.4.1 Transcribing the Interview Data

The first stage of the data analysis consists of verbatim transcriptions of the audio records of the interviews. Transcription is an essential step in the analysis for getting familiar with the data collected through interviews, and preparing the interview accounts for the analysis to see the full picture (Matthews & Ross, 2010). However, the transcription of the interviews from audio to written format is a time-consuming process. For example, 30 minutes of interview takes about three hours to transcribe. Therefore, a free transcription software called Express Scribe is used to speed up the transcription process. While transcribing the interviews in Microsoft Word documents (see Appendix G-Transcribing the Interview Data), I used the hotkeys offered by Express Scribe software to play/pause, rewind/fast-forward, playback the audio in different speeds, and copy/paste the elapsed time of the audio without leaving the Word document.

Bazeley (2013) states that the transcriptions of the audio records should be as true to the real conversations as possible. The spoken text loses the emotional overtones and nuances while the transcription into written format and to annotate the text to express what actually occurred during the conversation is beneficial for the interviewer. In order to catch the nuances between spoken and textual format of the interviews, they are entirely transcribed including ‘hmmm’s, repetitions, and non-verbal and emotional elements such as pause, long pause, laughter and the changes in the interviewee’s

voice. Moreover, when the interviewee did not complete their sentences, I added words to the text in unique markers to make their words understandable within the context.

Instead of transcribing all the interviews at the end of the field study, I started transcribing immediately after each interview. It helped me to understand and interpret the context of the interviews better when my memories of conversations were fresh. Moreover, while transcribing the previous interviews, I realized the weaknesses to be developed as an interviewer. For example, I needed to give more time to the interviewees to think if they did not answer some questions, and ask additional questions when their responses were not clear. Considering these, I tried to improve my interviewing skills as a researcher in the following interviews.

3.1.2.4.2 The Analysis Process

Bazeley (2013) defines a pathway into qualitative analysis including different steps which are read and reflect, explore and play, code and connect, review and refine the collected data. During my analysis process, I followed similar steps in order to develop a sense of the whole data and see the connections between different pieces of the data. After the field study and transcribing all the interviews, I started analysis process by reading a total 305 pages of the interview transcripts while listening to the audio records. I tried to investigate the covered issues by my data from a holistic perspective and noted the critical points occurred within each interview.

Next, all the interview data is coded systematically. Richards (2015) states that the aim of coding in qualitative research is to learn from the data and understand patterns and explanations in the data. Therefore, the data records should be retained, and different pieces of the data should be brought together to be reviewed and interpreted. Moreover, the codes are used both to represent the same or similar data and to access all the data within the code when you need to return the data (Bazeley,2013).

Two types of coding strategies were applied to the interview data which are ‘topic coding’ and ‘analytical coding’ (Richards, 2015). For the initial coding process (see Appendix H-The First Round of Coding), I went through each sentence of the interview and assigned one or two topic codes to the sentences or the passages in the

transcripts considering the arising issues in the data. After the first round of coding, the most relevant and frequent coded data was carried to spreadsheets in Microsoft Excel. These spreadsheets helped me to see all at once the different pieces of the data which are related to the same topic.

For the second round of coding, 'analytical coding' was applied to the quotations in the spread sheets (see Appendix I-The Second Round of Coding). Richards (2015) uses the term 'analytical coding' to refer to coding the data considering the meanings in context more than storing information or naming the topic of the text. He indicates that analytical coding is the first step to develop a deep understanding of the meaning of the data, and to explore the ways of conceptual categories of the data. During the analytical coding process, I read all the quotations under the same codes again and assigned new codes, if it was necessary, considering the meaning in the text and my interpretations beyond their topics. For instance, a topic code, 'students' comparisons between school and workshop experiences', emerged after the first coding process, and this code covered a variety of views of the interviewees. After the analytical coding process, new codes were assigned to the quotations which compare school and workshop experiences such as 'different learning environment', 'the intensity of learning', and 'students' learning motivations'.

When the coding process was finalized, all the codes were brought together and put in order considering the emerging themes. The most relevant themes were selected to develop an understanding of the research and produce a meaningful output within the context of the study. The codes were organized under categories and sub-categories, and the final list of the findings was created. Then, the quotations which represent the findings concerning the context were selected and translated into English.

3.2 Summary

This chapter presented the research design of this study including data collection and data analysis methods. The two methods employed during the study are descriptive questionnaires and semi-structured interviews. The first stage of the research was collecting the data through questionnaires. The questionnaires were conducted to third and fourth-grade industrial design students from Anadolu University, Bahcesehir

University, Gazi University, ITU and METU. There were total 315 participants of the questionnaire from these universities. The data collected through the questionnaires were carried into spreadsheets and analyzed both quantitatively and qualitatively.

Second stage of the research was the semi-structured interviews. The interviewees were selected among the participants of the questionnaires. The semi-structured interviews were conducted with total 26 participants from different universities. All the interviews conducted face to face and online were audio recorded with the consent of the interviewee and these interview records were transcribed to prepare the data for qualitative analysis. The interview data was analyzed by using thematic analysis method. All the transcribed data was analytically coded and these codes were thematically categorized. The most relevant themes were chosen to present the main findings of the research. These themes were illustrated by the direct quotations from the interviews.

I will present the main findings of this research gathered by the questionnaires and the semi-structured interviews in detail in the following chapter.

CHAPTER 4

ANALYSIS

This chapter presents the analysis of questionnaires and semi-structured interviews. At the beginning of this chapter, the variety of design workshops will be explained based on the data collected from the questionnaire. Then, the findings obtained from interviews will be introduced under two main headings: learning in workshops and professional benefits of workshop participation.

4.1 The Variety of Design Workshops

The responses to the questionnaires, which I conducted at the first stage of this study, show that overall, industrial design students have an interest in extracurricular workshops that address themselves. Although the number of the workshops that they participate in varies, 228 out of 315 participants reported that they had attended at least one workshop in the last three years (see Table 3.2).

The findings of the questionnaire demonstrate that there is a large variety of workshops. Some of the workshops are repeatedly indicated by several students from the same or different universities. In total, 218 different workshops were mentioned in the responses to the questionnaire. The information related to these workshops provided by the participants of questionnaire is listed in Table C.1 (see Appendix C)

These workshops differ depending on the subject that they focus on, the organizing people or institutions, the facilitators, the duration, and the venue. Some of the named workshops focused on the same subject but are facilitated by different people and

organized in various places. There are also workshops that are facilitated by the same people on different subjects.

Workshops are commonly formed to cover one particular subject related to design. There is a large variety of subjects that workshops are dealing with as students reported in the questionnaires. For instance, workshops can be categorized according to the industrial sectors based on products, such as furniture, automotive, lighting, game and toy, packaging, household appliances and kitchen appliances design. As well as different industrial sectors, workshop subjects can also be related to different user groups. The participants of the questionnaire mentioned that they participated in workshops on designing products for the particular needs of users such as children, disabled people, and refugees. Students also referred to workshops on different materials such as wood, glass, ceramics, metal, and leather. Some of these workshops focus on designing concept products to be made of these materials, while some others on learning craft techniques and manufacturing products out of these materials.

The workshops that students participated in were also related to technical skills and knowledge such as sketching, model making, and computer modeling. Particularly workshops on computer programs such as Fusion360, Rhinoceros, Photoshop, and Illustrator were mentioned by the students since these workshops provide them a good opportunity to learn how to use that programs and add these skills to their CVs. The workshops listed in the questionnaires also cover a range of sub-topics or disciplines within design, such as basic design, graphic design, UX design, human-centered design, character design, institutional identity design, and logo design. New technologies such as 3d printing and IoT attracted students interest, as well.

In addition to the variety of subjects, workshops are diversified according to the people or institutions that organize them. As the participants of the questionnaire stated; universities, foundations, companies, design professionals and academicians organize design workshops. Students participated in workshops which are set up by universities as part of different events such as seminars, conferences. Moreover, it is also common for industrial design student clubs to organize workshops. People from different backgrounds facilitate design workshops. Participants of the questionnaire referred

workshops that are facilitated by academicians, design professionals, and students. Despite the fact that some of the workshops are related to the same subject, different facilitators and their expertise in the subject provide diversity in workshops.

Design workshops are held in different cities and places. According to the responses of the questionnaire, students participated in 74 workshops in Istanbul, 59 workshops in Ankara, and 52 workshops in Eskişehir. Apart from the main cities that workshops are organized in, students also introduced workshops in different cities such as İzmir, Bursa, Muğla, Balıkesir, and Antalya. Again, students participated in workshops held in not only in Turkey, but also in different cities around the world such as Salzburg, Berlin, Bucharest, Milan, and Torino. The questionnaire data has shown that the students of Bahçeşehir University participated in workshops abroad more often than students in other four universities. In terms of the venue, it is common that workshops take place in classrooms or studios at universities. In addition to this, students also mentioned about some places such as Atölye Istanbul, Tasarım Atölyesi Kadıköy, Tripedia Tasarım Eskişehir, SALT Galata, where different workshops are regularly hosted.

The duration varies for each workshop. The length of the listed workshops was suggested to change between two hours and 16 weeks. However, the workshops that last for one day to one week are more common among all the list. The participants of the questionnaire commonly tend to participate in one or two-day workshops which took place in the city that they lived in. As well as the students who participated in the workshops only in their own universities, there are also students that travel to different cities for workshops. The number of students who participated in workshops in different cities is higher at Anadolu University than other students. There are also workshops, in the form of a summer or winter camp, which last for longer. The participants of these workshops usually travel to another city, and the organizers of workshops provide food and accommodation.

To conclude, my questionnaire data confirm that there is a considerable diversity of workshops that the students participated, regarding the subject, the organizers, the facilitators, the venue and the duration. Each student participated in particular ones

within this variety of workshops, and it was essential to understand how students evaluate the workshops to participate in. The interviews which I conducted as the second stage of this study provided extensive data on students' workshop evaluation. Interviewees explained their criteria to select the workshops to participate in. In the following section, I will define these criteria mainly based on the data I gathered from the interviews.

4.2 Industrial Design Students' Criteria to Select Design Workshops

The interviewees were selected among the participants of the questionnaires, by considering the number of workshops that they had attended. The numbers of workshops that each interviewee attended ranged from four to 12 (see Table 3.3). In their responses to the questionnaires, interviewees had different approaches to selecting workshops. For example, while some of them listed workshops on a variety of design related subjects, some others participated in workshops on one specific subject several times. During the interviews, I investigated students' workshop choices and found out that students usually have some criteria when deciding on which workshop to participate in. Only a few of the interviewees mentioned that they participated in every workshop they reached without evaluating under any prior criteria. Moreover, my interview data shows that most of the students selected the workshops by considering different dimensions of the workshops. I will explain the main issues, which are the subject and the facilitator of the workshops, that affect students' workshop participation.

4.2.1 Workshop Subjects

Interview data also confirm that the subjects of the workshops were important for industrial design students while they evaluated a workshop to participate in. They indicated that they seek subjects that would attract their interest. During the interviews, students described the subjects that fall into their 'personal interest' and 'professional interest' areas. Although some students said that they participated in the workshops because they 'love the subject' or 'the subject is related to their hobbies,' it was common among students to select workshops which they relate to their industrial

design education and/or their future professional design career. The quote below shows a student's selection criteria for the workshop:

A3: First, I investigate whether the theme of the workshop is related to subjects that I am interested in, or not. If not, I don't think I would lose time by participating in that workshop. I wouldn't participate in it. The subjects that I am interested in are shaped by both my personal and professional interests.

In the findings, there are three main concerns about choosing the workshops related to their subjects: getting more familiar with the subject, exploring different subjects and expanding on the knowledge of the subjects of the curriculum.

First, students tended to participate in several workshops related to one specific subject with which they want to get more familiar. Some of the students indicated that they have already decided in which design field they would like to work in the future, and they prefer to participate in workshops about the subjects related to this field. They expect to be able to enlarge their experiences in these subjects beyond their formal education, as the following quote illustrates. A student stated:

B4: The workshops I selected to participate are mostly related to furniture or wood. I choose those for my future. I would like to work in this field in my professional life. Therefore, I want to have experience in furniture design field before I graduate from university. I gained experience on furniture by participating in these workshops.

Design approaches, different product industries, materials, design skills and knowledge might be the reason for industrial design students to participate in a workshop. For example, during the interviews biomimicry as the design approach, furniture and toy as industries, leather, and wood as materials, sketching and modeling as technical skills were cited as the interviewees' fields of interest. They participated in several workshops to learn more about these specific fields. An interviewee explained that she wanted to learn more about leather as a material:

B2: I'm really interested in leather. I selected the 'Gush Goods' workshop because of my enthusiasm for working with leather. This workshop was about designing accessories made of leather. I thought what I could design things from leather at home on my own, because it was easy for me to reach the leather because of my family's company. I wanted to produce goods from leathers, but I did not know how to do. I searched for a workshop on leather because it was my priority to learn more about it.

Second, students saw design workshops as an opportunity for exploration of different subjects. Although some students were aware of the design subject in which they were interested, some students were willing to investigate the subjects that attracted their interest. Their choices of design workshops were shaped by the desire to get more familiar with different subjects. One student states: "I check whether I have participated in a workshop or had a lecture related to the subject before deciding to take part in a workshop." As this interviewee pointed out, students give value to participate in workshops in a variety of subjects.

Furthermore, the students get excited by the subjects which they do not have prior knowledge of before participating in the workshop. An interviewee spelled out that she chose to participate in workshops focused on the themes which are new for her:

A1: Some of the workshops that I decide to participate in may be related to the fields which I have never worked in. For example, I didn't know anything about biomimicry. I participated in that workshop to see what I could learn about this subject. Again, I participated in the toy design workshop for this reason.

As this quote illustrates, students are willing to learn more about new subjects as well as ones with which they were already familiar. Moreover, some of the interviewees underlined that getting familiar with different subjects is not only their wish but also a necessity for their future career. An interviewee stated:

M6: I am studying industrial design, and there are a lot of different sectors in the design field. As a consequence, I am trying to select the workshop subjects in different design fields which can take my interest.

Industrial design students value the knowledge about different subjects as in this account. Some interviewees declared that they did not know in which design field they would be working in the future. Therefore, there was a shared belief among students that the more subjects they were familiar with, the more advantageous they would be in professional life. Some of the interviewees decide to participate in workshops from different fields of design because they would like to discover their ability and interest in these subjects. Thus, they use it as an opportunity to decide which subject they are going to focus on in their future career:

M4: For example, if I want to work in that design field, I would consider participating in that workshop to get to know that field. In the past, I was interested in the automotive design. First, I participated in some workshops about automotive design and then I did an internship in this field. Finally, I turned up. I was interested in furniture once, but I did an internship, and I changed my mind. I participate in different workshops, and I may find out the design field which takes my interest.

Third, students tend to select subjects by considering whether or not it supports the curriculum of the department where they study industrial design. Students stated that they participate in the workshops which they believe to cover the subjects that they could not develop a deep understanding yet through their undergraduate education. Some interviewees pointed out that they participated in design workshops as extracurricular activities because the courses alone were not enough for them to develop some skills and knowledge. Therefore, they see design workshops as a chance to compensate for the lack of some subjects in their undergraduate education:

G5: There are courses, and they are definitely useful. However, the courses are not enough, and I could not gain the necessary knowledge. But it is an essential subject in the design field. For example, the course of materials... Designers and engineers engage materials differently, but the course I had taken was not specialized for designers. I need to learn this on my own, and if there is a workshop focusing on this subject, I would be willing to participate in that. Am I interested in this subject? I don't say "I search and learn about metals today." Nobody can say "I am interested in metal, I love metal." But I participate in it...

As this quote illustrates, industrial design students' subject selection criteria are about not only their interests but also their interpretation of the scope and content of the courses offered in industrial design curriculum. To develop themselves as industrial designers for their professional life, industrial design students improve their skills and knowledge through design workshops if the courses are insufficient.

An interviewee stated that he was a member of one university's industrial design student community which organizes workshops. He explained how he made use of workshops to fill the deficiency of curriculum and learn more about particular design subjects. He also claimed that as a community, they consider the needs of students while organizing a workshop:

A5: For example, for the sketching workshop [which they held at their university], we can speak of a relationship between the subject selection and a gap in the curriculum. Students need to learn more about this subject. For this reason, we said: “we need to organize a sketch workshop.”

Thus, students not only select workshops among others considering their lack in some subjects, but actively lead organizing workshops to compensate for it.

4.2.2 Workshop Facilitators

Students’ accounts show that as well as workshop subjects, the names of the workshop facilitators are also influential on in which workshops students choose to participate. Students tend to attend the workshops which are facilitated by the designers or academicians who are well-known in the field. One student puts it as follows:

A2: I decide to participate in workshops according to the facilitators. I mean the names of the designers... Whether they are successful or not is important.

A number of interviewees mentioned that they would like to participate in workshops which were facilitated by popular designers or the designers who are known in the field as illustrated below:

A1: I participated in workshops because I wanted to work with the famous designers. For example, [2 workshop facilitators] were known people in the design field in the recent years.

Another interviewee stated that knowing the workshop facilitator and his professional field affects her decision to participate in a workshop. She needed to search for the facilitator if she did not know him to get more information about the workshop:

G1: Another criterion is the workshop facilitator. When I don't know the facilitator, I search on the internet to get to know what he did, who he was because he manages the workshop, and gives the lecture. The workshops are about his professional field... For this reason, I pay attention to the workshop facilitator. People would like to participate in workshops when they know the facilitator. If they didn't, they would search for him to find out more about him.

As discussed previously, there is a tendency among students to participate in workshops when the workshop facilitator is ‘a famous designer,’ ‘popular’ or ‘known in the field.’ They found workshops as an opportunity to meet these facilitators in

person and benefit from their professional knowledge and experience. One interviewee puts it as follows:

I4: The facilitators' expertise in the design field is important for me. If the facilitator were someone that I follow, it would affect me. I mean, if he knows about the subject, you would realize his knowledge about the subject during his speech, and he could take your interest into him. The facilitator's background is also valuable for me. For example, his works and designs, and his lectures in the past [are important].

While the workshop facilitator had expertise in one design field, industrial design students were willing to learn the design methods which he applied during the design process. An interviewee stated her feelings about getting to know a facilitator:

A4: Another thing I am considering is the workshop facilitator. For example, [a workshop facilitator] is coming for a workshop. I say "Aah yes, it is an opportunity to meet with him". It is a chance to learn his methods. It is about the person. It has an influence [on my decision].

Another interviewee talked about a workshop which is organized by different groups of people. Although there was a number of facilitators, he was only excited about meeting with the academicians of a high-known university. He explained it as follows:

B1: If I didn't know that the academicians and instructors from that university were coming for the workshop and if the rest of the facilitators would manage the workshop, I wouldn't consider participating in that workshop. I think those facilitators were the reason for most of the participants to come together for that workshop. [...] It attracted me to have a chance to work with those facilitators and learn things from them even though it would last for one week.

In the interviews, networking appears as a significant motivation to participate in design workshops for some students. Some of the students were willing to participate in workshops which are facilitated by known people in the field not only to learn from them but also to enlarge their network connections in the design field. An interviewee stated:

A3: I think we are evaluating the facilitators according to their popularity and their experience in the field. It might be because of the knowledge we can gather from him or just to meet with him because we will be graduated and we will start our professional life. Thus, we give importance to meet with people who may guide us in working life. For us, being able to talk to the facilitator in

the future and saying “I participated in your workshop and you talked about this” is a big step to professional life.

This account illustrates how students perceive the connection with the workshop facilitators as an opportunity that they may benefit from in their professional life.

The criteria of students to select workshops to attend are mainly related to the subjects and the facilitators as I explained above. Apart from these main issues, just a few of the students mentioned that they also consider the location and timing of the workshop while deciding whether to attend. Selecting the workshops that are recommended by their friends or selecting according to the contribution of workshops were voiced by a few of the interviewees.

4.3 Students’ Acquisitions from Workshops

All the interviewees reported that they benefit from their participation in workshops. During the interviews, students explained how they do and would make use of their acquisitions from workshops in detail. It seems that students’ workshop participation has a positive influence on their educational development and their future professional life.

This section is organized into two main topics. The first topic, learning in workshops, covers students' acquisitions related to their educational development. Motivation for learning, learning environment, intensity of learning, learning from workshop facilitators, and learning from peers will be discussed respectively under this topic. The second topic is professional benefits of workshop participation. Getting prepared for professional life, contribution to CV/portfolio, and building networks in workshops will be presented under this topic.

4.3.1 Learning in Workshops

In the interviews, students suggested that workshop participation has a direct and positive impact on their educational development. According to them, these workshops support student learning by providing them with a different learning style compared to university education. The students in this study defined these different learning styles by comparing them with their school experiences.

From students' perspectives, learning in workshops differ from learning at school on five grounds, which are motivation for learning, the learning environment, intensity of learning, learning from the workshop facilitators and learning from peers. In the following sections, I will explain the five main aspects mentioned above in detail.

4.3.1.1 Motivation for Learning

Students indicated that their voluntary attendance to the workshops has a positive effect on their motivation for learning in workshops. For them, whether students have to or are willing to do something influences students' approaches to learning. When students decide to participate in workshops themselves, they are more ambitious to learn a subject. A student pointed out the importance of voluntary participation in extracurricular workshops considering his motivation to learn:

B1: First of all, since workshops are extracurricular activities, I participated in them because I was willing to do it. I feel relaxed in workshops. I don't have expectations to get high grades or money. Participating in workshops voluntarily by getting rid of this kind of expectations has a positive effect [on my motivation]. This [motivation] helps me start one step ahead [compared to my classmates].

Moreover, there was a shared thought among students that the courses in the curriculum of industrial design education are compulsory, and this situation creates pressure on students. On the other hand, workshops as extracurricular activities are optional, and students decide to take part in them voluntarily, and voluntary participation eases the pressure on students. The following account by a student exemplifies this perspective:

I3: The things you gain in here [at school] are obligatory and put pressure on you. Even if the school is enjoyable, you have to work hard for it. However, I feel that you do things in workshops just because you want to do so.

In addition to voluntary participation in workshops, my findings show that students select workshops considering a variety of design-related subjects. Students suggest that while industrial design education cover particular subjects within the scope of courses, workshops offer a considerable diversity in the subjects to focus on, and students have an opportunity to choose particular workshops between several alternatives to participate in. Students evaluate workshops considering the subjects

they are willing to learn. They also decide to participate in workshops on different subjects that take their interest. Being able to decide which subject to learn on their own seems to motivate students. This account illustrates the positive effect of students' selection of subjects on their learning motivation:

A3: It is not possible to say [to instructors at school]: "we want to learn this subject, teach us." There is a curriculum, and they teach us the subjects in the curriculum. Thus, the outcomes of the school projects are also in the context of the curriculum. At least, you can choose workshops. If you say "I would like to attend this workshop," then you would follow the workshop process curiously because it takes your interest.

There is a shared belief among students that they value learning greater about a subject with their own effort. They suggest that they can study a subject by utilizing different sources and learn it on their own. However, they have some problems with motivation while learning without guidance. The difficulty to find reliable sources on a subject and lack of exercise make studying on their own problematic. On the other hand, their motivation to learn a subject is higher in workshops because they see workshops as an opportunity to reach trustable information and practice on a subject. A student explained how workshops motivate him within this context:

A3: You obtain information in workshops from a person who knows the subject or from an instructor. He tries to convey his knowledge to us, and it is the correct information about the subject. Where else do we get this information? Where do we meet this? We can get it from the internet. Can we find an opportunity to exercise it? No! Something you read on the internet provides low motivation and encouragement. I read and pass; I don't implement it. However, when there is someone who talks to you, observes you and encourages you by saying "Do this", that is more fruitful. Then maybe it is turned into a game, and there will be a reward at the end. That will provide better motivation and will be more beneficial [to the students].

Besides the subjects that attract students' interest and make them willing to learn, there are some critical knowledge and skills that students need to develop during university education to become industrial designers. Students need to study and practice on these subjects to develop themselves. However, some students mentioned that it is difficult for them to study on these subjects and practice on their own. For example, a student told that he did not make sketches without any reason and he realized his lack of practice when he needed to make sketches for his school projects. For this reason, he

participated in sketching workshops to make practices in his spare time. Overall, students see workshops as an opportunity to improve their knowledge and skills and motivates them to learn.

This section has presented students' motivation for learning in design workshops. The main aspects related to their motivation are:

- Students' voluntary participation in design workshops rather than being obliged increase their motivation to learn in workshops.
- Students' choices of the workshops subjects considering their needs and interest increase their engagement to the learning experience in design workshops.
- Students participate in design workshops with a high motivation to learn because they see workshops as an opportunity to learn new subjects from different facilitators and involve in different exercises and practices related to various design subjects.

4.3.1.2 Learning Environment

My interview data shows that workshops create a different learning environment for industrial design students compared to the school environment. Students work in different places with different materials, and they feel more comfortable and free in workshops' informal environment. First of all, the physical environment of workshops affects students' workshop experiences. Organizing workshops in different places rather than studios where students are familiar with changes students' perspectives towards workshops. A student stated:

M3: I think it is better to participate in workshops in different places. I can adapt there in a better way. Because this place [her university], reminds me different things. I would feel like I am in the studio course [during the workshop]. When you are in different places, you are more aware that you will do something else. Different places would be better.

As the account above points out, when workshops are held in different places which are new for students, it increases students' awareness of being in an extracurricular activity rather than school courses. Breaking the connections with the school

atmosphere by working somewhere else than the studios allow students to participate in workshops actively. Thus, they are more motivated to take part in workshops because they are conscious that it is not a required school activity but an extracurricular activity which they can also learn.

Regardless of whether workshops take place in university buildings or different venues, students mentioned that they are more willing to learn when the environment is well-prepared for the workshop. Students told that in most of the workshops they participated in, the environment was well-prepared considering where they would work and which materials they would use. Workshop places were arranged before the workshop started according to the subject and the activities that would be carried out related to it. For example, if the workshop were on crafting or producing, materials such as wood, clay or leather would have been prepared for each participant. For some other workshops, the preparation would consist of only colored pens and paper. According to students' accounts, the arrangements in the workshop environment not only help students to learn by working with the materials, but also get students ready for the workshops. One interviewee puts it as follows:

G1: Post-its, colored pen and pencils and things like that directly motivate me. There was a preparation during that workshops. We are all designers, we all love stationary equipment. Everyone looks at the materials, touches them before the workshop starts. All of those materials warm you up for the workshops.

Students mentioned not only the physical environment but also some characteristics of workshops which make their learning environment different. My findings show that workshops create an informal learning environment by being enjoyable, relaxed and free. 'Having fun' is a part of workshop experience and it supports students' learning by attracting their interest to the subject. An interviewee states:

A2: I think workshops offer an active and enjoyable environment. Thus, it is supposed to be like that. People lose their interest in the workshop when they are not having fun.

Some students voiced that they participate in workshops because they have fun while learning. Even if they do not consider industrial design education strict and boring,

workshops seem to mesmerize them to enjoy the process. One interviewee puts it as follows:

G2: You enjoy your time at school, too. We are much more delighted compared to many other departments. The courses are not dull; we have easy-going instructors. However, you are having much more fun during the workshop. Sometimes, you are participating in workshops because you have fun in there.

Students stated that being enjoyable is an essential aspect of workshops' informal environment. Thus, the workshop facilitators are the main actors in creating this environment. There is a shared belief among the students that the facilitator's attitude towards them influences the workshop environment and increases the interaction among the participants. An interviewee claimed that this enjoyable environment and interaction increases students' creativity:

M1: All of the facilitators of the workshops that I participated in believed that the workshops should go ahead with fun. Consequently, creativity arises with fun. [...] For this reason, whatever you are doing [during the workshop], you are doing it while enjoying it through a good interaction. During the process at school... we see most of the small tasks as obligations. It is a traditional student viewpoint. You don't see them obligatory in the workshops. It is freer [than school]. I do whatever I need to do during workshops without anxiety.

Students perceive the design process in workshops and school differently. Students feel free in workshops while they feel obliged to accomplish some tasks at school. There was a tendency among students to relate being obliged to learn a subject with being graded in their courses. Their anxiety about being graded puts pressure on them during the process. An interviewee explained how this stress affects her creativity:

A4: For example, there is no concern to be graded in workshops. Thus, there is no pressure of failing in a course or being absent in class. You are there [in the workshop] just because you want to improve yourself. You could take some elective courses at school, and you can choose them, but you would still be stressed about your grades. You don't have that stress in workshops. I think more creative ideas appear in workshops for this reason.

Some students stated that they tend to shape their projects at school only by considering the instructors' perspective and comments. The students perceive the instructors' comments not as contributions to their projects but as commands since their final designs will be evaluated by the instructors. There is a belief among students

that they need to follow the path that their instructor shows in order to get high grades from them. This is why, students suggest that they fail to develop their own design style. The following account illustrates this perspective:

G4: We influence each other [with other students] during the design process at school because we all receive the same education and have similar approaches [to the subjects]. The instructor's attitudes influence us to develop ourselves from the same perspective. For example, when we say "The instructor gives high grades to a particular kind of projects." or "He [his classmate] used this method and got a high grade from the project," all of us try to make that kind of projects or apply that method. This prevents us from creating our own style.

Some interviewees mentioned that the workshop facilitators' and the instructors' guidance during design processes are different. The school projects are designed to cover different tasks during the process, and the instructors control students' task accomplishments and evaluate them. The instructors direct the students to some points considering the duration and the context. Being led by the instructors is perceived by students as reducing their freedom to create new ideas. An interviewee explained it as being constrained by the instructors:

G3: We can produce more creative things in workshops. We can think in different ways and develop new perspectives [in workshops]. We can deal with different subjects when we are free. However, the instructors at school reduce our freedom. They say what we have to do precisely. When they say so, we would not have any other option.

This section introduced the findings related to the learning environment in design workshops which are:

- Physical environment of design workshops including the preparations in the workshop place, different materials and equipment positively affect students' learning experience in workshop.
- Design workshops creates an informal environment to build new knowledge and skills for industrial design students which they define as enjoyable, relaxed and free.
- Getting rid of the pressure of being evaluated by instructors and facilitators' mode of instruction encourage students' creativity in workshops.

4.3.1.3 Intensity of Learning

My interview data shows that the focus and duration of workshops offers an intense learning experience. Workshops are organized to cover a particular subject in a determined time period, often varying from one day to one week as it is described in the first part of this chapter. As some accounts suggest, focusing on learning a single subject in a short duration contributes students' learning faster. An interviewee stated:

M2: I can say that the workshops are an intense version [of school]. You get used to long project processes at school, and you get tired in time. When it takes shorter time, it is more dynamic. Moreover, I choose the subjects that take my interest or that I would like to learn. Workshops are pop-up activities of my life when I need to think more intense and faster. For this reason, I can say that workshops offer fast learning, because you get to know the subject and the rest of the day you work on a project [related to the subject]. For example, you might spend a Saturday for a workshop, and you might learn more in one day than what you learn in six months [at school].

There is a difference between the duration of courses at school and the workshops. However, workshops seem to offer an efficient learning in a shorter time. Some interviewees mentioned that students need to consider different dimensions of design process during school projects during a long time and it causes them to ignore some points as illustrated below:

B3: Since workshops focus on particular subjects, they might be remarkable. Because in the projects that we are working on at school, we need to pay attention to a lot of issues. Because of the different user groups and different problem definitions, we need to focus on a lot of subjects at the same time. And sometimes it confuses us. Thus, in this kind of activities, when the facilitator says "Look, this is important, and you should consider this" about one specific subject, and I can understand better to which issue I need to pay attention. However, we may skip or may not pay attention to some issues because the instructors have huge expectations from us.

According to my interview data, workshops which last for shorter time periods not only support an intense learning but also make students speed up during their design process. Students mentioned that workshops are a compressed version of their courses. Therefore, students need to take rapid decisions in this faster version of the process. An interviewee stated:

A3: It [the workshop] can be a smaller model [of the design process in studio courses]. For example, if it takes three months to do a project at school, the duration is about two hours [in a workshop]. Which ideas could you create in two hours, what could you do? It might increase [one's working] speed.

As some students mentioned during the interviews, while the design process in workshops is similar to the one in studio courses, the duration of the workshops is much shorter. For this reason, students need to finalize their design process in a shorter time in workshops than they did in studio courses. Another interviewee pointed out the importance of taking design decisions faster to complete the process:

B3: You need to compress the process that lasts three weeks at school into four days. You need to decide more quickly. Of course, you have difficulties while doing that. But there is a thing that I would like to apply to my project processes. You can't make decisions because you expect everything [about the project] to be perfect. You can't decide because it is not perfect. However, it doesn't have to be perfect. If you can't decide, you would never develop the project. [you need to say:] "I take design decisions right now, then I could keep developing them." I have been trying to make it a practice lately. You need to do it in workshops because you need to accomplish a product in four days even if it is good or bad. I brought out a product even if it is not well designed. You get used to taking faster decisions in workshops because you need to do it and you are aware of it.

As the interviewees stated, despite the fast process in some of the workshops, students produce the final product or make high-quality models. This kind of workshops improve students crafting skills in a short time. An interviewee puts as follows:

B2: Getting results is always good. During the workshops, you think fast, and you produce fast. It is so good if you could have something tangible in your hands at the end of the workshops. You could finalize it with a product at the end of a concentrated week [in workshops]

The accounts illustrate that workshops not only speed students up, but they also teach students to use their time efficiently. Students are willing to accomplish the requirements of the workshops, and they have limited time to do it. For this reason, they need to be aware of the importance of the use of time, and they need to develop time management strategies for them. These strategies help students to enhance their time management skills. An interviewee stated how she learned time management during workshops:

B1: In fact, we have also learned time management because we have presented something much faster at the workshops. This, I think is a productive feature of workshops. So, to develop something in 40 minutes, to develop a product, or to deal with wood with its model for 4 hours after deciding on an idea in 15 minutes are very crucial decisions. While they teach us management, they also teach us time management. At school, we consider a 2-week project as a short-term project, but there are actually 3-4 hours, maybe even less than an hour of work, but the model making period is maybe a few more days. It is much more important for us to learn these features quickly and to guide us to more accurate and faster ways ... I can say that there is such a difference with school.

Another interviewee also pointed out that she manages her time more efficiently during school projects by using her workshop experience on time management:

G3: We actually learn more about time management. For example, in these kinds of things, we are always given a topic that lasts for a whole day, and it is expected from us to develop and get it done by the end of the day. [...] for example, it happens in school as well. For example, at first, the instructor assigned us a project. Then he says that he wants something, or a product idea in the next evening. I'm starting right now. I already have learned from the workshops, or at least, I have an experience. I'm starting to work because at least I know how to approach, somehow results ensue.

During the interviews, students were also asked to explain the aspects they find unfavorable in workshops. Some of the interviews answered this question as 'time constraints'. Although the short durations of workshops were mostly mentioned positively by many interviewees, some of them complained about it:

M6: I think the duration of most of the workshops is really short. I mean, we scarcely finish [the tasks in workshop] in half a day. I felt like we needed to talk more about what we did. However, most of the workshops seemed to remain missing to me. Some of the workshops were really intense, and we couldn't complete them. I think the duration [of workshops] should be longer.

As the previous account illustrates, students had difficulties to accomplish all the tasks in workshops in a short duration. When they could not fully complete the activities, they feel like the workshops were lacking in some aspects. For this reason, students think that the context and the activities of a workshop should be designed regarding the time limits. An interviewee put as follow:

M3: We spent an intense time because the duration of the workshops was extremely short. The workshops usually end without completing the final phases. For example, you have learned a new method or a new tool; the time is

up before you practice it. I think this is missing in workshops. We have a good start in every workshop, we work intensively, and it is thought that we can succeed it. In fact, the output that is expected from us in workshops is equivalent to the ones we produce in a broader time. Maybe, smaller things could be wanted from us instead of huge outputs, or the duration could be extended.

This section has presented the intense learning experience of students in design workshops. The main points in this section are:

- Focusing on learning about a particular design subject in workshops helps students to increase their knowledge and skills related to the subject.
- The short duration of workshops seems to contribute students to learn faster.
- Students get used to take design decisions faster and complete several tasks in design process during the short durations of design workshops. It supports students to increase time-management skills in design workshops.

4.3.1.4 Learning from Workshop Facilitators

According to my interview data, the workshop facilitator is one of the influential actors on students' learning in workshops. Students increase their knowledge and skills about several subjects by learning from the facilitator through workshops. As I mentioned in the first part of this chapter, workshops are facilitated by different people from different backgrounds such as academicians, design professionals, professionals from other disciplines, and students. This variety of the facilitators and their backgrounds offers students the opportunity to learn a subject from different voices with different perspectives.

It was common among the students that they perceive workshops as an opportunity to meet new perspectives. Working with different facilitators and learning from them in workshops help students to understand different approaches to several people to a subject. As this interviewee exemplifies, students would like to get familiar with different approaches of the facilitators:

G4: This [getting to know different approaches of the facilitators] is the thing that excites me because I would like to learn what they do and how they think. If the workshop is held in a different place, I would have an opportunity to get to know a new place. I love the word 'new.' It brings good things to my life.

The interviewees stated that they learn the subjects of the industrial design curriculum in their courses by the guidance of the instructors. Each instructor has different approaches to a subject, and they get familiar with those approaches during their industrial design education. On the other hand, in workshops they have a chance to learn from different people and their approaches are new for the students compared to the approaches they are familiar with:

B2: New people... I see the same people at school all the time. The same instructors... I go to a new place to participate in a workshop, and I meet new perspectives. [I have a chance to communicate in] different languages. [I meet] new people. You look through from different windows. Thus, you don't stand at the same point.

There is a shared belief among students that their education at school is formed by their instructors' knowledge and methods. They have already had a chance to develop an understanding towards this knowledge and approaches during their courses in the curriculum. As the students mentioned during the interviews, students are willing to learn from different people than their instructors because they extend their knowledge beyond the knowledge of their instructors. The following account underlines this point of view:

A4: I don't want to be bounded only by the instructors [at my own university]. Learning from different, wise people; listen to them, their lecturing style would affect positively our learning.

As the interviewees pointed out, the students and the instructors at school get to know each other completely because they spend enough time during different courses in their industrial design education process. On the other hand, many of the facilitators who are instructors from different universities or design professionals are new for them to get familiar with. In this regard, students define learning from new people as a different experience comparing to learning from their instructors. An interviewee puts as follows:

B1: We have instructors at school. They are familiar to us, and we are familiar to them. Learning something from a person that we don't know, learning from that person for the first time and learning from the person who stands in here [in workshop] to teach us creates a different learning experience. We learn things from a different profile that we got used to by hearing from a different voice.

Another interviewee mentioned that there is a strict relationship between the instructors and the students at the school. The students perceive the instructors as not only the people who teach them but also evaluate their performances in a course. As discussed before, being criticized and evaluated by the instructors at school changes students' focus on learning and developing themselves to getting good critics and grades from the instructors. However, she thinks the facilitator of workshops only aims to share their knowledge with the students without evaluating them with grading their works. Therefore, she says: "Workshops should be facilitated by different people than our instructors without this student-instructor relation."

My findings show that beyond the facilitators' being new for the students, they give importance to the facilitators' professional knowledge and experience. They mentioned that the workshop facilitators are well-known in the design field and have a high degree of expertise in some design related subjects. Students have an opportunity to benefit from the facilitators' professional knowledge in workshops while developing themselves as industrial designers. The following account illustrates this perspective:

B2: [the effect of the facilitator] is positive in the process because their professional knowledge compensates your lack in some subjects. [...] I need to know some of every subject [related to design] as an industrial designer. Thus, I need to use this knowledge in different fields. For this reason, I try to gather different information from different people that I usually work with. I could use this information when I need in the future.

Another interviewee underlines the importance of meeting professional perspectives and working with professional designers in workshops:

M2: Workshops allows me to understand the professionals' perspectives and be informed about their works related to the subjects which attract my interest. It also provides me an opportunity to work with them and produce things in their observation.

Some students give importance to the workshops facilitated by professional designers. While the students gain more theoretical knowledge from the facilitators who are academicians, they learn more about the design practice and implementation from the facilitators who work as designers in the industry. An interviewee believes that workshops should be facilitated by designers who actively work in design industry:

M4: We have already known those people [the instructors at school]. We are familiar with their approaches. For this reason, [we need to learn from] new people who work in the design sector. I believe that the workshops which are facilitated by academicians could not introduce us the design sectors. Academy is different [than industry].

Students seem to learn from practicing designers' ways of dealing with real problems of the design industry and their design processes. According to my interview data, students also get more familiar with different design industries with the help of the facilitators which works in those industries. The facilitators' professional works attract students' interests, and they learn more about the design process in specific industries. Students gain not only theoretical knowledge about these industries, but they also learn the production techniques and materials that used, the costs and marketing, and, the user groups in those industries. A student stated:

G1: They [the facilitators who work as designers in a company] have a work that they practice design profession. That work attracts your interest. The facilitators working in a company is advantageous for us. If you ask me whether I am interested in a workshop facilitated by an instructor or a company, I directly answer as the company's workshop. I would like to learn [how things work in professional life]. Of course, the primary knowledge of design is necessary, and we learn it from our instructors, but it is easy to reach instructors. On the other hand, reaching a company is more difficult. I wonder the process in the companies. I learn the theoretical knowledge at school and apply it to my projects. However, I don't know the process in real professional life. [I would like to learn] the production methods, the materials, the cost, the user groups, etc.

As the account above illustrates, students also learn about professional life from the facilitators who are working as designers in the industry. Students claim that the design processes and priorities differ in particular sectors. They get an opportunity to learn these different processes in different design sectors from the people which are active designers in the industry:

M4: The people from different sectors [the facilitators] explain their working field. Each sector has its own regulations, and they tell us during workshops. Every sector has its own approaches. Some aspects stand out rather than user needs in some sector processes. For example, while the products are tested in the early steps of the design process in some sectors, it can be at the end for other sectors. There are some differences, and you would realize it. We will be graduated in the end, and it [getting to know different sectors] is essential for us while deciding on our future career.

Students mentioned that their school projects are also designed to cover different design sectors in order to enhance students' knowledge in several design fields. They also make projects in collaboration with the companies in the industry. However, the students did not find these projects enough to get to know these different sectors because students' relation with the companies is shaped by the instructors considering the learning outcomes of the projects. On the other hand, the students actively interact with the designers who work in the industry, and it increases their knowledge about these industries:

M4: The projects are selected from different design fields at our school, and it is good for us. I think they assign us different projects in order to introduce us different design sectors. However, they are not enough to inform us about different sectors. Because we don't directly interact with the people from those sectors. There are instructors between us [with the people works in the sector], and it creates a different relation. It is, again, as a course. For example, you may have a chance to design a product for the glass industry, and you get to know more about that sector. It doesn't have the same efficiency with workshop [that facilitated by design professionals]

This section has introduced the findings of students' learning from workshop facilitators. This section has covered the issues below:

- Students have the opportunity to learn from workshop facilitators from different backgrounds such as academicians, practicing designers and people from different disciplines.
- Students benefit from facilitators' professional knowledge and experiences and meet new perspectives beyond the ones that they get familiar in their schools.

- Students value participating in workshops facilitated by design professionals because they can learn more about different sectors, real-life design problems, the design methods used in professional life.

4.3.1.5 Learning from Peers

Students experience workshop learning in an environment surrounded by the facilitators and other participants. As I explained in detail in the previous part, students interact with not only the workshop facilitators but also other participants. These interactions affect their learning in workshops. There was a shared belief among students that other workshop participants who are their peers serve a crucial role in their learning in workshops as I will explain in detail in this section.

My interview data demonstrate that students learn from the other workshop participants by sharing their knowledge and experiences; observing each other, and working together in teams. Communication and interaction between workshop participants seem to build an active peer learning. The interviewees indicated that they learn more from their peers when they improve conversations which they share their knowledge and information.

There are two main issues in the context of improving peer interactions in workshops, which are individual participation in workshops and teamwork. I will explain these issues in detail with different aspects.

4.3.1.5.1 Individual Participation in Workshops

The interviewees claimed that they participated in workshops individually or with their friends. Thus, some of them experienced both individual participation and collective participation in workshops. While students compare these experiences, they stated that they could build broader communication with the other participants when they participate in workshops independently from their friends. When students participate in workshops together with their friends, they mostly spend time with each other, and thus, cannot foster close relations with the other workshop participants with whom they meet there for the first time. So, individual participation in workshops increases

the social interaction between students who are not familiar with each other, by compelling them to communicate. An interviewee reports:

M2: There are differences in social aspects [between participating in workshops individually and with friends]. One person doesn't affect the interaction with others too much. However, when there is more than one person beside you, interaction with other people are decreasing considerably. If you are on your own, you are forced to talk [to others]. You socialize with them. If I participate with someone who I have known personally, I have already identified his opinions and view of life. We can predict each other's approaches. However, when I meet with x person from x school, his perspective may be entirely different, and it may provide an expanded vision.

As this account points out, students directly interact with new people by whom they are surrounded by in the workshops. This interaction among students helps them to learn new things and meet different perspectives. Hence, students broaden their perspectives by communicating with new people. Another interviewee underlines the significance of individual participation in workshops considering communication with new people:

G2: When I have people on my side, I can't be separated from them. We have conversations among us. Maybe you can meet new people, but [probably you wouldn't do it]. When you go to a workshop alone, every person is unique for you. You have different conversations with them. They contribute to you in a different way. You can supply [different knowledge] to them. I enjoy this kind of communication [with new people] more. Although I am a shy person, it is essential for me to do things with new people. I try to overcome this [being shy] in workshops. I think workshops help me to develop [social skills].

As this account points out, establishing communication with new people help students to learn new things and broaden their perspectives. Besides, students also learn how to build connections with new people. While learning from the other participants, students also increase their communication skills in workshops. Moreover, students indicated that they could quickly focus on learning new things when they individually participate in workshops. They can be distracted by their friends while following the workshop and observing what others are doing.

Almost all of the students indicated that they prefer participating in workshops individually. Only a few students mentioned that they prefer to attend workshops with their friends because they are more comfortable with the people who they have already known. However, they also stated that individual participation is more efficient within the context of meeting new people and learning from other participants.

4.3.1.5.2 Teamwork in Workshops

Similar to individual participation, teamwork also increases the interaction among the workshop participants. Students improve communication among them while working together in teams and adapt themselves to work as a team. The following quote illustrates the importance of individual participation and teamwork in workshops concerning the student interactions:

M1: Participation in workshops individually provides me for adapting myself faster [to the workshop]. We worked in teams in all of the workshops [that I participated in]. I adjusted myself to the teams so fast, and we started to work directly. I created things sometimes in one day or half a day. It is challenging, but I think I gain an ability that I need. While we start working together, I don't know which issues the other team members were strong or weak. I don't know who my teammates are. I try to get to know them and position them in my mind and doing it is difficult. After doing it, things are getting more comfortable. For example, there are dominant and shy characters in every team. You need to tolerate different characters. [workshops' contribution] is mostly in developing communication.

Thus, students get to know new people and encounter new personalities as they work in the same team. They develop communication strategies towards different personalities since they need to communicate with their team members. Another interviewee claims that working with new people helped her to have active communications with the people whom she has not known well:

G2: Here [at the department], we are always together with the same people. After a while, you get familiar with those people because you see them all the time. But working with different people in workshops... I'm a shy person, I'm afraid at first; but at the same time, I want to learn something there. It has enforced me to strengthen my communication skills with people, and this is actually the contribution [of previous workshops]. Now, I can communicate better with people I don't know. I'm sure that this is the contribution of workshops regarding my skills.

According to my findings, teamwork in workshops provides students with more opportunities for communication and interaction with new people. The interviewees put an emphasis on teamwork within the context of learning from and with their peers. They reported that they mostly work in teams rather than individually in workshops. While describing how and what they learn from other participants, the interviewees usually referred to the teamwork and the other members of their team. An interviewee underlines the contribution of teamwork in meeting the perspectives of new people:

M6: In workshops, usually, we do not do anything alone. We work with few people, and generally, those are the people we do not know before. I consider this as significant because perspectives of different people among the thing we do [in workshops] contribute me a lot.

As explained in detail in the previous parts, in workshops students learn in an informal environment, and they do not have formal relations with the workshop facilitators. However, students mentioned that asking questions to their peers is more natural and efficient while working with them than asking the facilitators. This relation between peers helps them to learn from each other as well as from the facilitators. Students learn the major aspects of the subject from the facilitator at the beginning of the workshop, and they keep learning from the team members in the rest of the workshop. One student puts as follows:

G1: In the beginning, you take the necessary information [about the subject of the workshop] from the organizer, actually the facilitator. You understand the logic of [the subject]. You can say that “Okay, in this workshop, I will do this kind of things by focusing on these points. Then during this period, you learn from the people near you, your teammates. As I said; then, the mere function of the facilitator turns into giving background information about the subject [of the workshop].

Another student stated that they could gather theoretical knowledge about the subject from the workshop facilitator, but they share practical knowledge and experiences among the team members. While working together, they observe instant solutions of other people to the problems they face during the workshop, and they learn from each other:

I1: We get the theoretical knowledge from the facilitator. For example, we build a structure in a workshop. The facilitator helped us with their expertise in materials and production. We learn from them what we need to consider

while producing it. On the other hand, you learn instantly from the others in the team while producing together. You communicate and create instant solutions. These are essential and practical experiences. You learn experimentally by working together and learn useful information from others.

Another interviewee underlined that the short duration of workshops causes students to create practical solutions. While students work to produce an output in workshops, they have a limited time. For this reason, students tend to use the fastest and the most practical methods:

A2: I think [learning from other participants] is more efficient. You can't work with teams for a concise time [at school]. You try to do whatever is the most practical and fastest, because you need to create an output in a short time. For this reason, everyone uses the most practical methods they have known, and you learn them. I believe I was like them even if I didn't realize.

As mentioned before, workshops do not only consist theoretical lectures on different subjects, but they also provide an opportunity for students to practice their knowledge and produce design solutions to the problems in those subjects. Mostly, they finalized the workshops with product design proposals as or the product itself. Some of the students mentioned that teamwork eases the design process in workshops. Students collectively create ideas and work together to get better results:

A1: I think teamwork is better [than individual work]. You need to put a stronger effort to create new ideas. However, you take others' opinions while working together. What they say brings new things to my mind. We get faster results. It takes more time when you work on your own. Of course, it is challenging [to work with new people] in the beginning, but you get used to it within half an hour when you started to talk with them.

As this account presents, students prefer working in teams in workshops rather than individual work. Different perspectives of each team member contribute to the design process, and they shape their final design together. As a result of these contributions, they develop better outcomes by designing in teams compared to their individual design process. Another student points out that he also prefers working in teams in school projects because other team members' contributions broaden his perspective:

M2: I think on my own, and I look at from my perspective [while working individually]. When I have someone on my side, we think together, and it expands my viewpoint. You start to look through from a broader angle. I prefer teamwork even in school projects and also every work I need to do.

My interview data shows that students learn how to work with other people as well as they learn from others with teamwork. Teamwork brings out its challenges together with its advantages. Students learn to overcome these challenges such as communication and negotiation problems and to take decisions among different ideas and perspectives by experiencing them in workshops. An interviewee puts as follows:

B1: All of these were actually a group project except the one I made a thing of wood. At first, in group projects, we learn what teamwork is. Also, developing a product by oneself is the thing we have always been doing at school. During teamwork, [we face with] different opinions, problems, and ideas we disagree with... But then, after five days, we overcome all of these issues and have a product in our hands. In this sense, developing a [designed] product at the end of a more challenging and more extended period compared to individual projects was motivating for me. The thing we presented there, was not a result merely of my own decisions but there were some significant points I touched on [during the design process]. So, [the final design] was not entirely mine [idea and decision] but it is mine at the same time. This gave me motivation because teamwork is not an easy work environment; still, the team consists of people who we cannot choose.

Another interviewee indicated that different expectations of team members from the design process in workshops also make teamwork challenging. Students develop some strategies to overcome these challenges by trying to understand different perspectives, and considering others' opinions while working together in workshops. These strategies help students to increase their capacity to work in various teams:

M3: While working in a team, you cannot assume the expectations of someone you do not know. Workshops are processes which are helpful in being adapted to new teams. You come together quickly and produce small projects. I love it!

As this account points out, students' teamwork experiences in workshops help them to adapt themselves to new teams quickly. Students commonly attach importance to this adaptation because it enhances their future teamwork experiences when they need to work with new people in new teams. Another interviewee underlines that she overcame the challenges of teamwork that she had confronted before by improving her communication and adaptation skills in workshops:

M1: [Workshops] helped me to adapt myself to new teams faster and create faster outputs with them. I had problems with these issues before [participating in workshops]. Communication and adaptation are coming to my mind when I think what I gain from the workshops.

There is a shared belief among students that they improve their teamwork skills more when the team is composed of the people who are not familiar with each other. Team members' past relations change the dynamics of the team while working together. This account illustrates this view:

M3: I think the people who have known each other, such as two students from METU, shouldn't be in the same team. It is better to work in teams with new people. Teamwork is better than working individually.

Another interviewee stated that the team members who have already known each other have more influence on them than others. Students can develop ideas collectively when they approach equally to the others' ideas without this influence. She indicated that students also need to have a critical view towards their friends' ideas:

G1: Working with new people is entirely different [than working with friends]. I participated in a workshop, and there were participants from different universities. We were in the same group with my friend and some other students. It didn't contribute us a lot because we are coming from the same background and we are close friends. She is another person and thinks differently than me. However, you can predict how she would think and what she would say. It wouldn't surprise you. On the other hand, you would care more about her opinions if she is your friend. You would be more influenced by her. It is about approaching professionally. Still, friends shouldn't be in the same team.

This account also points out that while students work with the people who they have already known, they encounter more foreseen approaches and ideas. New people's perspectives bring diversity to what students discover and learn in workshops, and this should be considered while creating teams in workshops.

Parallel to this view, my findings show that teams in workshops are formed considering different participant profiles. These are industrial design students at different levels of their education, industrial design students from different universities and students from different disciplines. Students gave examples from different teamwork experiences during the interviews, and they explained how the diversity of team members affected their collaborative learning process. I will present these views under three sub-topics considering the three different participant profiles.

Learning among peers at different levels of their industrial design education:

Some students mentioned that they participate in workshops with students from 1st to 4th grade and graduate students. They had an opportunity to work with them in teams, and their teams were included students from different levels. Industrial design students develop different knowledge and skills at particular levels of their studies, and they increase their capabilities while proceeding in further levels. Thus, novice and senior students' working together help novices to benefit from senior students' knowledge and experience in industrial design education. An interviewee puts as follows:

A2: I participated in a workshop in the first year of my studies. The people in my team were at a higher level [at industrial design education], and they said: "Let's make brainstorming!". I didn't know it at that time because I was in 1st grade. I was surprised that there is a method called brainstorming. We moved so fast, and we finished what we needed to do. I learned it in that workshops. The other students taught me brainstorming.

Besides, particular capabilities of the students at different levels of their education affect the teamwork dynamics and students' roles in the team. For instance, students distribute the workload while working together according to the different qualifications of team members:

B1: Every team consists three students from first, second, and third-grade. First-grade students mostly did craft works. The works related to computer programs are done by second and third-grade students. They prepared the presentation boards. I was really impressed third-grades knowledge. They seem much more knowledgeable than me at that time. Now, first-grade students may see me like that.

This account also points out that novices compare their qualifications with their seniors. They get impressed by the senior students' knowledge and experiences, and this impression motivates them to improve themselves and get prepared for the upper levels of industrial design education.

Learning among peers from different universities:

Although the numbers of different universities may change in particular workshops, it was commonly mentioned by the interviewees that they meet with students from other universities in workshops. For instance, in one workshop, students stated that there were students from 12 different universities in Turkey.

My interview data demonstrate that students from different universities build conversations among them about their industrial design education approaches in their own universities. Students compare their education and identify the differences on the subjects, tools, and methods between their programs' curricula. An interviewee reports:

B1: We talked with students from different universities in workshops. We talk about what project we are working on, which computer programs we use. Everyone talked about their departments. Nobody said terrible things about their education. I also learn that there are a lot of industrial design departments at the universities which I haven't known about. We made a comparison between our instructors' approaches. We talked about how we present our works, which programs we use, and what is expected of us in school courses. We show photos of our works from smartphones. We share information about our classes. We have conversations like "I know this subject. What do you know? How is it thought to you?"

Students also compare their practices in the courses and the approaches of the instructors in different universities. Students inform each other about their school projects and their design processes. Therefore, students expand their knowledge on different design approaches of various universities by sharing their knowledge and experiences that they gain from their industrial design education. Moreover, students evaluate the industrial design education in their own university by comparing others. Another interviewee states, parallel to this view:

G1: We all study industrial design, but the education is different at each university. I participated in a workshop at TOBB University. They told me they work on designing electronic devices throughout one semester. The workshop was also related to electronic devices, and I make use of their experiences on this subject.

Students mention that their knowledge and experiences are limited by the industrial design curriculum and the instructors of their departments. Students get the opportunity to learn what is taught and practiced in other universities, to understand different approaches of various instructors from different universities by the communication of knowledge with students from those universities. Students benefit from the others' knowledge and compensate their lack in some subjects. For example, some students mentioned different modeling programs, which they even have not known their names before, are used in by the students from different universities. They

can be introduced to those programs in workshops, and they can learn the basic tools of them from their team member while working in a team. An interviewee puts as follows:

M4: It [workshop] makes me see the differences [between the education at different universities]. Here, we are closed in a small world. In the simplest term, we use a [modeling/software] program and believe that everyone uses this and it is quite important... as if there were just that [program]. No, there are millions of [modeling] programs used in millions of different sectors [in the industry]. That is to say; it is even significant to see them. Maybe another one will be better for you and you will move onto that [program]. As I said, in automotive [industry] for instance, Alias is used. If you are closed to the automotive industry, maybe you should learn [to model in] Alias. Let's say you will tend towards animation or graphic [design] then; you need to use different programs. So, we need to see these differences. In these kinds of experiences, you can see that different person [design student] use a different [modeling] program. For example, I observed in my first internship that another design student was using Vray. At that time, I did not even know what Vray is. I mean... Like this...

My findings show that students assess themselves by comparing their knowledge and capabilities with others from different universities. This self-assessment helps students to create new learning tasks for themselves as a result of the desire to reach the knowledge levels of their peers. Thus, students are motivated to learn new subjects individually when they realize their lack in those subjects. The following account illustrates this situation:

A3: I mentioned about the sharing of knowledge with others in workshops before. Sometimes other participants know more than you about a subject. You realize your lack of knowledge. This realization is important. You say "We should be at the same level as peers, but he knows something, but you don't know anything about it. It means it is something you need to know." You ask yourself "Why don't I know it?", and you start learning about that subject.

On the other hand, students' understanding of their position among their peers seems to develop their self-confidence on their knowledge and skills. Thus, students take decisions during their design processes more confidently. When students have more advanced experience and capabilities than their peers, they also believe that this would be advantageous in the future. A student reports parallel to this view:

B1: Definitely! It reminded us [me and the workshop participants from my university] that we are not behind from the students from other universities, we

are even one step ahead of them. For this reason, that workshop was so helpful for us. Indeed, self-confidence and our achievements from workshops are quite crucial regarding the profession because if we do not feel that confidence, we cannot come up with an idea when we take the pen and paper in hand or conduct a research... I mean... The thing that actually gives us the courage to design/create is our self-confidence and gaining this [self-confidence] with the help of these workshops is an excellent value for me.

It is also common among students that they not only assess their professional skills and knowledge but they also compare personal skills and attitudes to others. They learn from their peers' approaches by observing their attitudes towards different situations. Within this context, working with peers positively affects students' educational and personal development. A student indicates:

M1: I realize that people from our profession but from different schools seem more self-confident than myself. I don't know... It seems they are better at defending/justifying their projects. However, we [the students from my department and I] are never sure about what we did, even when we design something which is better in quality regarding design. It seems like there is always a lack of self-confidence. But, on the other side, they [students of other design schools] can defend themselves and the projects while doing their presentations or for instance in juries; they look better in my eyes. Apart from that, we keep in touch with them. That was the return of the workshops; I made lots of friends from different schools such as Anadolu University.

Learning among peers from different disciplines:

According to my interview data, students had a chance to meet with students from various disciplines in workshops such as architecture, interior design, fashion design, business administration, social sciences, education, and engineering departments. One student mentioned that she participated in a workshop which includes students even from medicine. During the interviews, students reported that they worked with these students from different disciplines in teams. They see this teamwork experience as a significant benefit of workshops because they do not commonly take part in an interdisciplinary team during their industrial design education:

A5: [In workshops] I come together with people from different disciplines. Under normal circumstances, I cannot come along with these people. I believe that this is the second most important contribution [of workshops].

During the interviews, students underlined the significance of interdisciplinary teamwork considering their learning and broadening their perspectives. Each student of interdisciplinary teams comes from another background shaped by their own discipline and its education. These students' knowledge and approaches differ from industrial design students. Students get the opportunity to meet and understand their approaches. Parallel to this view, an interviewee indicated that she learned the approaches of students from interior design department by working with them in a workshop:

A1: I think it is perfect [to work with people from other disciplines.] For instance, working with interior designers... After working with them for two weeks, then I start to understand their working habits/rituals. While we [industrial designers] focus on the product, they [interior designers] consider the space. After a while, I started to think in a way that where should I put this [product]. As they [interior designers] focus on space, I liked their point of view. It is different than the product; there are different consequences. For example, we were assigned to a washing machine design project in the second term of the third class. In that time, I told myself that let's think this with its space; like, putting washing machine where can make it more efficient. With the perspective of interior designers, I gained this point of view.

As this account also points out, students make use of their learnings from other disciplines' approaches during their own design processes. Students expand their visions, and they develop new attitudes towards the design problems that they encounter in their industrial design education.

In addition to learning from other disciplines, interdisciplinary teamwork has a significant effect on the final output of the team in workshops. Students indicated that they collectively create ideas while working together in teams, and different perspectives of various disciplines increase the creativity in the ideation process in workshops. An interviewee puts as follows:

A5: I believe that when different disciplines work together, for instance, an industrial designer, an architect, and an interior designer, different opinions and viewpoints come together. It can result in more creative solutions and outputs. Everyone has an accumulation of knowledge (know-how), and no one is perfect at a particular topic. Me, for instance, can able to contribute to the form of the product but I have weaknesses regarding color. When color is a matter, a friend from interior design background then steps in and solves this.

Students mentioned that in teamwork they distribute the workload among the members from different disciplines considering their knowledge and capabilities. During the distribution of work, students develop different points of the projects which are related to their profession, and they contribute to the final output to be evaluated entirely from those aspects. Moreover, students believe that they compensate for their lack of knowledge on particular subjects related to other disciplines by the support of the team members.

B2: In one of the workshops, the project was a public playground. Let's call it a public place. Architecture student prepared the layout of that site at first. The space they [organizers/facilitators] gave us was more complex regarding the topography. It was not a plain surface. He [architecture student] prepared the layout, interior design student examined the balance of the design with its environment, and I was interested in the play and playground as a product that we were going to design. We divided [the task] and end up with a good project. When you [your skills] are insufficient, their knowledge comes into the play, and you can complete each other.

Communication between team members is also another crucial issue while working together. Students are used to communicating with other industrial design students and their instructor during formal education. On the other hand, interacting with people from different disciplines is a situation that they face in workshops. Students need to develop a common ground to communicate with others during interdisciplinary teamwork. This common ground helps students to improve their communication of knowledge and learn from and with each other. An interviewee stated:

G4: Among participants, there are architects as well as industrial designers, but we can find a common/shared language and chat with each other. While chatting with each other, they say something unconsciously, but I can keep what they say in my mind. I say to myself that, what is this, I should search this. For instance, I learn a term specific to architecture. I can catch up with the different approaches by adjusting it to design.

Another interviewee underlines the importance of the communication between the students from different disciplines on getting to know various aspects of those disciplines. She states that they create a common viewpoint by combining different views of each discipline:

B5: We [industrial designers] understand each other better when we are in a team with industrial designers. When we work with industrial designers, we

seem to know each other even if we didn't know in person because we are from the same profession. We think more or less the in the same way. The people from other professions have different frames of mind and working habits. It differentiates the design process. There can be such a difference.

According to my findings, industrial design students believe that they have an essential role in the communication between different disciplines. They feel responsible for understanding different approaches of various disciplines, and to create a common ground to create a collective perspective towards the design process:

I1: I worked with people from other departments. I am in a student team with students from the aerospace engineering department, which we design model planes and aircrafts. I am in their design team. Our [designers' and engineers'] frames of mind are quite different. We have different ways of communication. We are like mediators. It seems to me that it is our responsibility to understand everyone and develop empathy towards them. We need to look at the scenes with a broader perspective. Someone solves the electronic parts, and others work on the structure and flow of the airfoil, but you [as an industrial designer] gather all the pieces together. It is an excellent competence, and I am pleased to be in this [industrial design] field.

This section has introduced students' learning from their peers in design workshops. The findings related to peer learning in workshops can be concluded as follows:

- Students learn with and from each other in workshops with the interactions between them. Individual participation in workshops and teamwork seem to increase their interactions and sharing knowledge.
- Students enrich their knowledge and skills while working together in teams by sharing practical knowledge and experiences, observing each other and taking design decisions together. Students' both acquire knowledge from peers and increases their communication and negotiation skills and their adaptation to the new teams.
- The diversity of team members influences students' knowledge acquisition and skill development in design workshops. Students' enlarge their perspectives by meeting with others' approaches to design problems.
- Students self-assess themselves and increase their self-confidence while working with peers. They discover their strengths and weaknesses

in some knowledge and skills and define new learning tasks to develop themselves.

4.3.2 Professional Benefits of Workshop Participation

As I explained in the previous sections, participating in workshops has a positive impact on students' educational development. My findings demonstrate that workshop participation would also be beneficial for students' future career. During the interviews, students mentioned their acquisitions and expectations related to workshops considering their future professional life. It seems that students look upon workshops as an investment in their future career.

Accounts of the students related with their professional life can be categorized under three main topics that are getting prepared for professional life, the contributions of participation in workshops to students' CV/portfolio, and building networks in workshops. In this section, I will present my findings related to these three topics respectively.

4.3.2.1 Getting Prepared for Professional Life

My interview data shows that students seek knowledge about subjects which they believe they will need in their professional life. Although they participate in workshops as an extracurricular activity during their university education, it seems that students not only correlate workshops with their educational development, but they also build connections with their future career. Thus, students assess their knowledge and experience they gain in workshops regarding the requirements to practice industrial design. Students state that they actively use this knowledge and experience in their courses and projects at school. Besides, they believe they will benefit from them directly in their professional life. An interviewee puts as follows:

B5: How does it contribute to me? I can say that, for instance, it was excellent for me to become aware of 3D printer technology, as I printed one of the models of my project from that. Hmm, honestly, that contributed a lot, I didn't have to make a model [by hand]. I can say that. That is also commonly used in business life, although it's a bit expensive. That is something I can use more in professional life [as a designer]. They [professional designers] use a lot for proofing and prototypes. So, I believe that I can use it [3D printer] frequently.

Besides, Illustrator is a significant program. It is a program that I have to use more than Photoshop. So, I can say that 3D printer and [Adobe] Illustrator workshops, I participated in, have been the ones which contributed to me the most; they [3D printer and Adobe Illustrator] are the ones I will be using most frequently.

As this account points out, students value expanding their knowledge and skills related to a variety of subjects regarding both their educational and professional development. Students assume that they would make use of some particular knowledge about the subjects such as rapid prototyping and computer software while practicing industrial design profession in the future. However, students are not exactly sure about which design sector they will be working in the future. For this reason, students participate in workshops in a wide range of topics related to design in order to prepare themselves for the possible situations they might encounter in professional life. An interviewee mentioned that she could benefit from her learning on a subject in workshops if she would encounter it in her professional life:

A4: For me, as I said, workshops are like a simulation of business life. Although the topic seemed irrelevant at that time, one day I can say that, "Once, I participated in a workshop related to this, I know this from that workshop." It sounds good. I mean... I normally may not use it [the information learned in workshops], but somehow it [the topic] may appear, and I can be in need of that information.

Additionally, there is a common belief among students that they might make use of their knowledge on various subjects in professional life even though their work would not directly be related to those particular subjects. During the industrial design education process, students seem to develop their ways of designing with the contributions of their workshop experiences. Then, they would be practicing industrial design profession through their own ways in their work life. Students predict that their knowledge about various subjects broadens their perspectives towards solving design problems. Students believe that, while finding solutions for different design problems, they approach those problems from different aspects.

A1: I learned something from different disciplines; at least, for instance, I worked on packaging design. At least, I have an idea [about packaging design]. Learning things about many different topics [from workshops] ... I believe that can be fruitful. For example, working merely in the furniture design field is not a right approach for me because other disciplines may influence the design of

the furniture. Or, let's say that I work in the field of small home appliances. Most of the time, small home appliances projects were assigned to us at school. However, in design of small home appliances, the effect of lighting, packaging or the use of marble as a material can make a difference. In this regard, I believe that working related to different disciplines or different subjects such as furniture, small appliances, automobiles differentiates [the design process].

As mentioned in the quote above, students' design processes are positively influenced as a whole by their background on various subjects. For this reason, students attach importance to developing knowledge about a diversity of subjects in workshops although their workshop experiences were not enough to be an expert on those subjects. According to students, getting familiar with different subjects in workshops is the first step to develop an expertise on those subjects. In parallel to this view, one interviewee reported that he participated in workshops on various subjects to learn at least a little about those subjects. Also, he believes that he can expand his knowledge with his effort after learning the basics of those subjects in workshops:

A5: As I have participated in more than one type of workshop, I have a basic understanding of every topic, though a bit. I have an idea about everything, not entirely but basic ideas. I don't like not to know anything about any topic. Even I have very little understanding; I can expand it with my own efforts. However, not having any understanding at all makes me feel weak.

As well as for students' educational development discussed in previous sections, extending knowledge in a wide range of design subjects also seems to become significant for their professional development. As it is spelled out in the previous account, students are willing to broaden their knowledge by workshop participation, because they see themselves deficient in industrial design field when they completely lack in the information of the subjects related to this field. However, being knowledgeable about different design related subjects increases students' self-confidence. Students' compensate their lack of knowledge on subjects that industrial design profession focuses on by learning in workshops. In this way, they are confidently getting ready for the professional life. An interviewee underlines the significance of being confident in professional life considering industrial design profession:

B1: Our learnings from these workshops and self-confidence are quite important regarding our profession. As a professional designer, if we are not

self-confident and dare not to take on responsibility, we cannot exist in this profession anyway. Not being self-confident is actually against the nature of our profession. If [design] students want to be good [designers], they have to gain this [self-confidence]. Otherwise, they will better to go towards different areas because our department, or all design departments are the ones where self-confidence is much needed.

Thus, according to the participants, participation in workshops on different design subjects not only equip students with necessary knowledge that they would benefit in professional life and increase their self-confidence to practice industrial design profession, but it also helps students to decide their future career path. Industrial design profession involves a large diversity of subjects, and industrial designers work in different sectors of the industry. During the interviews, many of the students indicated that they are not sure in which sector they would work in the future. They have an opportunity to get to know the sectors they possibly would be working in, and gain experience in the subjects related to them. A student puts as follows:

G2: I consider workshops helpful in deciding which area I may want to go towards after graduation because now, we do not know where and how we find a job. We [design graduates] appear in very different areas. Sometimes I get surprised and say “Here, also there are industrial designers.” But workshops... I have never participated in [workshops related to ceramics or wood]; but if I do, I strongly believe that they [workshops] will contribute to me in this regard. I can be able to say that “It is nice to play with ceramics or with wood...” I mean, I believe that I can have an idea about which subject I will be working on and enjoy in workshops.

Regarding students' future professional career, discovering their tendencies towards different subjects during their undergraduate education becomes essential. Students seem to benefit from their workshop experiences while evaluating their capabilities compared to the specifications of different design domains. While working related to a specific subject in workshops, students try to understand its dimensions considering the required skills and knowledge, the outputs of the process, and the description of work. Through workshops, students also have an opportunity to meet the designers from particular fields and learn from their experiences in the fields. The facilitators of workshops, who work as designers in the industry, share their knowledge and experiences related to their field in detail and guide students to decide which field they would like to work in:

G1: I actually utilize all the workshop opportunities. I try to participate in workshops about transportation, toys, electronics, etc. [...] I participate in different workshops related to different design fields because I learn what I need to do if I work in those fields by talking to different people in those fields. They share their professional experiences with you and explain their works in detail. You learn [about different design fields] from different aspects of them. Workshops make this kind of contribution.

Another interviewee also underlined that meeting with designers from the industry is essential because they inform students about their professional works and the methods they apply during their design processes. Well-known designers in the field explain students their career path with their successes and failures; and help them to understand the general picture of the professional life. He stated that students take courage to work in the design industry by learning from those facilitators' previous experiences:

G5: In workshops, facilitators are selected generally from the ones who succeed in. [Facilitators] Telling what s/he is doing and how s/he is doing it and the stories about oneself... For instance, facilitator X telling his jobs that he failed at... When facilitators tell this kind of things, we are encouraged to do something. You can say that "I'll do it, I should study, failing is a nature of this profession." It turns then, the vision for me.

As discussed before, students broaden their knowledge on various design domains. They realize the differences and similarities between different domains while practicing the subjects under these domains under the guidance of facilitators. They develop an understanding of the requirements of each domain. Students assess their skills regarding these requirements, and they decide whether or not their competencies match to the domain. Within this context, students believe that their workshop experiences help them to decide which design domain they should concentrate on in their professional life:

G4: These people... Maybe, they show me which area I should go towards. After all, in each one [workshop] I experience different things. But what I experience in one of the workshops I participated in can show me the area I should go towards and make me say that "That's it!", "I can not only do that but also want to do that." Since I experience things I do not have prior experience of, I say there are things I don't know, and I search them. I may be more satisfied in this way. I search for it and go towards it.

Students' interests in particular subjects, as well as their competences, also shape their professional decisions. Students get an opportunity to investigate their professional

interest by meeting new subjects of design in workshops. In addition to what they learn in workshops, they keep searching for these subjects and broaden their knowledge. For example, an interviewee indicated that she met the subject of UX design in a workshop and she discovered her interest in this field:

B3: For example, in one of the workshops, there was a title called UX Design. I realized that the topic attracted me. From that day on, I have been searching what UX design is, what the tasks of UX designers are and how to enter the area of UX design. I visited some places working on this topic and talked to people working there in order to see whether I can do it or not. Besides, I also see people working as UX designer, whose backgrounds are industrial design. I found out that people graduated from our department can work as a UX designer and it made me interested in the topic. I can improve myself in the field of UX design for my future career. I can go towards UX design and not merely work as industrial designer. That was one of the aspects of workshops influenced my life. After that, CEO of one the companies visited our department, he also talked about UX design. His words also affected me a lot. I have always searched for it [UX Design], watched lots of videos about what UX Design is, how I can start, and what I can do.

As her account illustrates, when students decide on their future professional field, they try to improve themselves for those fields. They are motivated to expand their knowledge and skills which they would need while practicing their profession. They assign themselves new learning tasks considering required knowledge and skills of their professional interest; and they try to gain experience before they graduated from university. They aim to prepare themselves for their professional life before they start to work in the field.

My findings also show that students' workshop experiences motivate students to improve themselves for their professional life in different ways. An interviewee stated that students' meeting with design professionals in workshops provides to see themselves as industrial designers of future, rather than just industrial design students. Students realized the importance of improvements in their skills and knowledge during their education, in relation to the requirements of industrial design profession. This situation positively influences students' attitudes towards learning new subjects, and improving themselves to be able to get a job in the future as an industrial designer:

G2: Until that time [that I participated in a workshop] I'd been thinking in such a way that "I am studying now, I have a long way to graduate, I can find a job

anyway”; but then [after participating the first workshop] I got flurried. I was like “I do not have an idea about anything, maybe there are many charming areas I do not know and where can I learn these?”

Another interviewee reported that he met with a number of industrial design students from different universities and he realized that he has a lot of competitors in the field. It creates pressure on him to improve his design knowledge and skills in order to have a job after graduating from the university. He assesses himself by comparing his knowledge and skills with his competitors’, and tries to stand out amongst others to be preferred in professional life:

B2: What did I realize? There are too many designers in Turkey. I realized that no one is better than another and we [designers] are in competition. It actually stressed me out because when we look at the situation in Turkey, we can say that there are not many companies looking for designers... We, designers, our number is increasing. Seeing this increase is positive because I was very comfortable until now. I was saying myself “You can find a job anyway, somehow or other I can do something.” Then you come together with forty more designers [in workshops], and you try to place yourself among them. Actually, that is when you start to stress out. I mean, why they [the industry] prefer/choose him but not me or the reverse. You look for the answers. You start to be concerned about how I can be better and, in this way, you begin to desire for self-improvement. After that, you can improve yourself.

According to my interview data, students define workshop experiences as ‘a simulation of work life’ concerning the time constraints and teamwork in workshops. There is a common belief among students that to accomplish the design tasks and to create an output in a limited time in workshops, prepare them for work life. They think they may have time constraints in work life as they have in workshops. They test their strengths and weaknesses towards these constraints, and they learn how to deal with them. A student puts as follows:

A2: For me, [workshops] tests our patience; you generally start to get bored and tired to the end. You get tired and say “Enough!”, but quickly designing something in that limited time tests you. So, you test yourself. Maybe you will have limitations in your professional life too. I do not know, in this sense, participating in workshops sounds me logical. I meet very different people. Now, we are only familiar with the ones in our university, but in workshops, you meet different design students from different design schools. And, in workshops, you realize the differences [between schools]. You can say “They do it in that way, but we do it in another way” and you are in need of being in accord with the others [students from other schools]. I do not know; it is

probably will be the same in professional life too. Mmm, you become more understanding. You listen, [ask] why we do this in this way... I argue them more comfortably. I feel so.

Similar to enhancing peer learning in workshops (see Section 4.3.1.5.2), students believe that their teamwork experiences prepare students for their future professional life. During the interviews, students claimed that they would possibly be working in teams in the future. Students enhance their team-working skills while working with new people in workshops. They believe they will benefit from their previous teamwork experiences when they need to work with others in professional life. As the following account points out, students give great importance working in teams in workshops before encountering the teamwork in work life:

B3: At first, working with very different people there [in workshops] is an experience. Seeing different people's approach to design and their viewpoints towards a problem is another experience. S/he can see what you cannot see, and the reverse is also true. [In workshops] we are also able to see what kind of experience working as a group. In our school, until now, only one project was a group project. The remaining all was the individual ones. I believe that, when I graduated, [in professional life], I will work in a group. In workshops, I see the importance of working in groups. They are good for me. Let's say in five hours; you design something with a person you've never met, you have to get in contact with this person for that five hours.

As explained before, students meet different approaches of new people while working with them as a team. As a team, they create a collective output by combining different ideas and approaches. While doing so, they learn how to work as a team and the dynamics of teamwork. They get used to welcome others' opinions and take shared design decisions during the design process in workshops. Within this context, workshops equip students with necessary collaborative skills which they will need in professional life. Another interviewee voiced as follows:

B1: In our professional life, there will be the times when we work with a group of people. It is positive; we have the opportunity to observe that at one hand. On the other, in life, we will not always be meet people like ourselves. Workshops are actually preliminary preparation for this too. [In workshops] we meet different people and try to work with those different people and different minds. What I gained is much more actually. Instead of deciding by myself, taking decisions as a group and agreeing with the people in this group is more precious for me. I have an achievement like this from workshops I have participated. Understanding different disciplines and developing projects with

different people in an insufficient time is really instructive for the future. In the end, in our workplace, we will never work with our own friends. Maybe we will be assigned to a group of people. How we communicate with them may be the results of these workshops. We can exist in those groups thanks to what we did in workshops.

As the account above underlines, students put emphasis on interdisciplinary teamwork in workshops. Getting accustomed to working with people from other disciplines has a significant role in students' future work life since they believe that they will practice industrial design profession in an interdisciplinary working environment. Moreover, students perceive the workshop environment as a model of professional life because they produce outputs while working with people from other disciplines than industrial design:

M5: After all, in our professional life, we all work with people from various disciplines, engineers for example or according to the workplace, it changes. If you work in a company, there are lots of people. If you work in offices, there are interior designers, architects, and managers. Workshops are limited processes in which you develop a designed product. You develop a product in a short time, but for me, they [workshops] are a small example of it [interdisciplinary working environment in professional life].

This section has presented the findings of students' getting prepared for professional life. The main issues in this section are:

- Students improve their knowledge and skills required in professional life, and gain experience on specific design subjects.
- Students learn more about different design subjects and it helps them to decide for their career path by exploring their tendencies and competencies related to these subjects in workshops.
- Students consider workshop experiences as a simulation of work life and they believe they are getting prepared for professional life by getting used to working with new people in teams.

4.3.2.2 Contribution to Their CV/Portfolio

The interviews with students have revealed that, students give importance to present their workshop experiences and the outcomes in their CV and portfolio. Students

believe that their workshop participation can positively influence the employers while they evaluate their CV and portfolio.

Students mentioned that they have priorities while adding their workshop participation to their CV and portfolio. Mostly, they prefer adding their workshop participation to their CVs and presenting the outcomes of the workshops in their portfolio. Including their workshop participation in their CV or portfolio, students tend to put workshops in order and give some of them a priority by considering the workshops' contributions to them. They believe that workshops that are facilitated by famous designers in industry or organized by well-known institutions will look good in their CV/portfolio. Therefore, they primarily add these workshops to their CV/portfolio. Moreover, students prefer to add the names of the workshops when they are selected as workshop participants from a larger pool of other applicants.

A1: If I find the workshops productive, [I would write it in my CV.] I would also write it if the workshop is well-known in Turkey. It means that it is an important workshop and everyone knows it. Sometimes even the number of participants is limited, and it is important to be accepted for these workshops. I write them [in my CV] because it means that I am selected for these workshops. I am accepted for it rather than many other students. It is like fulfilling a criterion to be selected.

Besides, students value the certificates which they receive from the workshops they have participated in. They regard these certificates as evidence of their participation in workshops. Moreover, students believe these certificates become more crucial for the companies when the companies are evaluating their CVs. Thus, some students list only the certificated workshops in their CV:

A3: You need to highlight the activities you participated in while preparing your CV. If I don't have any certificates [from the workshops that I participated in], I could not have anything to prove that I participated in those activities. There is a part of my CV which I write the workshops I participated in, but I write only the ones I got certificates from. I didn't write the ones which are not certificated. It was important for me.

According to my interview data, students consider the output of the workshop when presenting them in their portfolio. Since they present their works visually in their portfolio, they prefer workshops in which they design product outcomes. During these workshops, students can produce visual outputs such as sketches, mock-ups, models

or the product itself. These outputs help students to visualize their design processes in workshops and display them in their portfolio. For this reason, finalizing a workshop with concrete outputs is significant for students. A student voiced:

B2: You spend time and learn in workshops, but it is also important to have a tangible output in your hand at the end of the workshop. You need this output to show your experience [on the subject] to other people. You should be able to say that "I learn how to do it and here is the final output." It means I can design this kind of products if I work in this field.

Another interviewee indicates that she evaluates the outputs of workshops before deciding to add it to her CV or present it in her portfolio. She points out that adding new projects to her portfolio is more significant for her than adding workshop participation in her CV:

A1: I might decide [to add in my CV or portfolio] considering the product which I develop during the workshop. I designed some products which I can present in my portfolio during some workshops. On the other hand, it [one of the workshops that I participated in] was not focused on designing products, and it is not so important for me. I might add this workshop to my CV in the back row. I mean it is about the product that I design.

As the previous account points out, it seems that students would like to demonstrate that they are capable of designing a product in their portfolio. For this reason, they prefer to add visuals, such as sketches, renders, and photos of the products to their portfolio, which show their design process in workshops. Many interviewees mentioned that they expect to increase the impact of their portfolio positively.

On the other hand, some students indicated that they do not include their workshop projects in their portfolio since they prefer to improve their portfolio with highly resolved projects and they cannot produce these results during the limited duration of workshops. Students believe that they need a longer time than workshops allow, to develop projects to a level they are happy to present in their portfolios. As it is presented in the following account, students would be pleased to participate in workshops where they have enough time to develop advanced outcomes:

B5: I write my workshop attendance in my CV because the portfolio is a visual presentation. We cannot produce good results in one or two days. For this reason, I didn't present them in my portfolio. It would be nice to have products

[that I design in workshops] which I could improve my portfolio. However, I think they [the workshops] would have a longer duration. I don't think I could develop a product which I could put in my portfolio in one or two days. I mean we present the products which we worked on during months in our portfolio. If I participate in an extended duration workshop and gather successful results, I would present it in my portfolio.

Some students also mentioned that they spend extra time working on products they designed in workshops. They present these products in their portfolios after improving the quality of them. Thus, they improve their portfolio with new projects in addition to the school projects.

There is a shared belief among students that their workshop participation contributes to their CV and portfolio, and it will be useful for job applications. They aim to create a point of difference among their competitors by improving their CV/portfolio to get a job in the future. Students have two central expectations of presenting their workshop participation in their CVs or portfolios which are first, to show their interest in the design field beyond their formal education and second, to demonstrate their knowledge and experience on different subjects.

During the interviews, students mentioned that companies are looking for people who improve themselves beyond their formal education. Within this context, students' extracurricular activities seem to become crucial to getting a job. Students believe that including workshops as extracurricular activities in their CV/portfolio has a positive influence on the employers while evaluating their job applications. Students aim to show their interest in the design field by participating in design related activities out of school time, and they think the employers would appreciate this. A student puts as follows:

B3: I think it [workshop participation] has an important place in my portfolio because it shows to the other people that I do things related to this [design] field out of the school time. I think it is an important aspect of workshops. They help people to develop themselves, and the workshop participation shows their interest in their own field.

Another issue mentioned in interviews was that students were willing to demonstrate their knowledge and skills which they developed in workshops in order to convey a positive impression through their CV/portfolio on potential employers. Students

develop their knowledge and skills during their industrial design education, but they believe this formal study is not enough for them to get a job in the future in which they can practice their profession. They feel they need to further improve themselves by enhancing their knowledge on various subjects through extracurricular activities. For this reason, students include their workshop experiences in their CVs/ portfolios to demonstrate their knowledge on various subjects and their capability as a designer to the employers.

G4: People will say that "Look, she participated in these workshops, she did these, and she has knowledge on different subjects" when they look at my portfolio. I think this will create a positive image of me in their minds. I think other people's realizing my knowledge on different subject is important.

Another interviewee underlines that her workshop participation would be considered as a plus when she applies for a job. Therefore, she participates in extracurricular activities that she can benefit from and be able to contribute to her CV:

B5: As everyone knows, filling our CV with different experiences has an influence on being accepted for a job. It is a plus for you. Your experience level becomes important. The extracurricular activities we participated in such as fairs, seminars and workshops matter [when you apply for a job.] For this reason, I try to find useful activities and participate in these.

Students also mentioned that companies prefer candidates who are experienced in their sectors. There is a common belief among students that their experience in different sectors which they gain in workshops can increase their chance to be accepted for a job. They assume that the companies take students' experiences in workshops into consideration while evaluating the job applications. In other words, students expect to work in some of the design sectors which they have already gained knowledge about in workshops:

B2: I gain knowledge about different subjects [in workshops]. The subjects of the workshops can affect my future work life. I mean, I would be working on one of the subjects which I get experienced about in workshops. They [the companies] could hire me because of this [experience on the subject]. For example, if I want to work in the furniture industry in the future and apply for jobs in this industry, they could be impressed by my participation in furniture design workshop. For this reason, participating in workshops is important.

As I mentioned before, some students plan for their future career, and they have the foresight about which design sector they see themselves working in, in the future. They participate in several workshops related to these sectors in order to enhance their knowledge and overall experience. They expect to benefit from these experiences when they apply for work in the chosen field. Moreover, students believe that with their experiences gained from workshops they can create a good impression on potential employers evaluating their CV/portfolio:

B1: Participating in a workshop related to a specific subject might [influence the employers' views about me]. For example, if I apply to a company which produces furniture, they would say "He has participated in three workshops related to furniture. Even if he doesn't have professional experience in this field, he has the necessary knowledge, and he has furniture projects in his portfolio". I believe the employers give importance to this.

This section has presented the findings on the contribution of students' workshop experiences to their CV and portfolios. Based on these findings, it can be concluded as:

- Students evaluate the outputs of design workshops and decide to add them to their CV's or portfolios. They mainly prefer to present the visual outputs of the workshops in their portfolios.
- Student expect to create a positive influence with their workshop participations when their CV or portfolios are evaluated for a job application. For this reason, some of the interviews participated in several workshops related to a specific subject that they are planning to focus on in their professional life.

4.3.2.3 Building Networks in Workshops

My interview data demonstrate that meeting new people is one of the most significant contributions of workshops to students. As discussed before, students have an opportunity to get to know the workshop facilitators and other workshop participants and learn from them during workshops (see Section 4.3.1.4 and Section 4.3.1.5). In addition to learning from others in workshops, students indicated that meeting new people is also important to enlarge their networks. There was a shared belief among

students that they would make use of their networks which they build in workshops when they enter professional life. Moreover, some students stated that they had already benefited from their networks during their education life.

This section is organized under two topics. First, I will present the findings related to students' networking with workshop facilitators. Then, networks built among the workshop participants will be discussed.

4.3.2.3.1 Networking with Facilitators

As presented before, facilitators of the workshops studied were mostly academicians from different universities and well-known professionals in the design field. Students believe that they need these facilitators' guidance and support for their future professional career. For this reason, students attach importance to meeting the facilitators and to establishing a direct connection with them. During the interviews, students mentioned that workshops bring students and well-known designers together, and create a useful environment for students to build networks with practicing designers. Students stated that they follow the works of some design professionals, but it is not easy to meet them in normal circumstances. They see workshops as an opportunity to introduce themselves and have face to face communication with these designers. An interviewee put it as follows:

A1: I meet [the facilitators] in workshops. You can't go to their offices [the facilitators'], say "Hello!", and meet them. However, you can meet the facilitators and introduce yourself in the workshops. For example, if I want to do an internship, I would have an opportunity to talk to them [the facilitators] face to face. Otherwise, it is really difficult to reach them. Workshops also creates an opportunity to demonstrate yourself [to the facilitators].

The interviewees indicated that their interactions with facilitators enable them to reconnect with these facilitators in the future easily. Students believe that their participation in the workshops would create a positive influence on facilitators while communicating with them after the workshops. The interviewees mentioned that they tend to start a later conversation with facilitators by reminding that they participated in the workshop although facilitators would not remember all the participants. According to my data, getting familiarized with facilitators in workshops increases

students' self-esteem to communicate with these people for advice and help in the future. The following account illustrated how students' make use of their familiarity with workshop facilitators to develop further communications:

A2: For example, if I want to do an internship or work with [a facilitator] in the future, I would tell this to him. I say "We met in the workshop that you facilitated". I think reporting that we have worked together with them [the facilitators] before would create a positive influence on them. I also do the same [meet with the professional designers] when I go to a conference. They meet with a lot of people, and probably they won't remember me when they see me again. However, I would still go near them and say "We were together in a workshop before. How are you?". I mean I can make use of this.

As the previous quote also points out, some students were willing to work directly with facilitators as interns or professional designers in the future. They believe the connections which they built with facilitators in workshops would help them to provide internship or job opportunities. The interviewees indicated that facilitators shared their contact information with participants of workshops for further communications. One interviewee reached out to one of the facilitators by sending them an e-mail to arrange an internship in the company that they were working for.

G1: I have met with the designers of [a company]. I never forget that experience. When I needed to apply for the internship last year, I sent an e-mail to the head designer of that company. I reminded him that I had participated in their workshop. They [the facilitators] had told us "We are here [whenever you need]" and had given us their contact information in the workshop. I said [myself] "If you gave me your contact information, then, wait for it!" and I contacted them. I reminded them that I was in the sixth team in the workshop and we had worked together before. They directly returned to me and said: "send us your portfolio and let's look at it".

My findings show that students expect to benefit from their personal networks while searching for a job in the future. Therefore, they are willing to get to know people in the design field. They believe that their networks built at school including their instructors and friends is not adequate, so they make an effort to meet new people and enlarge their networks in workshops. They stated that workshops provide them an environment to build professional networks which they can take advantage of to find a job in the future.

I1: Unfortunately, if you want to be a designer, and get a job somewhere under the conditions in Turkey, it is necessary to build up networks. Your networks provided by your school is not enough, never. Your instructors could maybe open a door for you. Hmm... Perhaps your friends would be your [professional] networks in the future after their becoming experienced [in the design field]. Apart from this, the workshops, for example, 3D printing workshop, opened new doors in my life. I met with [a craftsman] in another workshop. I think [the workshops] makes meeting new people, for example on the street, more conscious. Plus, a more professional meeting occurs [in workshops].

There was a common belief among students that having a broad professional network is as important as being accomplished in the design profession to find a job in the future. Students assume that their professional network would increase their occupational prestige when they apply for a job. They believe that putting well-known designers' names as their references in a job application would increase the possibility of being selected among other job candidates. An interviewee indicated that:

A4: For our [industrial design] department, especially if you have a network, even if you are not good at your profession, [you would find a job]. I don't know... I don't mean that you don't need to be good at your job, but I mean that you can earn money in some way if you have a network. There is something that a job can be shown up to you; it is something like that.

Moreover, students believe that they would get job offers through their networks in the future. They expect to be recommended for some jobs by their networks, so they try to build strong connections with people in the design field by introducing themselves with their competences on communication and design. An interviewee stated that he got a job offer from facilitators of a workshop even as a student due to his work in the workshop:

B1: We get to know a lot of people [in workshops], and actually, our network is broadened. For example, after [the facilitators saw] the product that I produced in the wood workshop, they said "If you want to work with us in the summer period, our door will always be open to you. We would like students to work with us."

Beyond finding a job through networks, students put emphasis on the importance of their professional network regarding their possible collaborations with workshop facilitators in the future. Students consider their professional networks as human and information resources which they would benefit from in their future projects. Some interviewees mentioned that they are willing to work as designers in different design

fields rather than working in one field their whole professional life. They assume that they would consult to their connections considering their expertise and collaborate with them while working on different projects.

Also, an interviewee made use of his networks with the facilitators even as a student. He indicated that he contacted some facilitators to get critics from them related to his school projects and he believed he would also consult them for his future projects. Another interviewee underlined that students' workshop experiences with the facilitators create a ground for future communications:

M2: Networking is an important issue in workshops. For example, if I work on a project related to media, I know some people [the facilitators of the workshop related to the media] that I can contact via e-mail. My participation in their workshop creates a reason for me to contact them. Another example is that I participated in the workshop of [a facilitator] during [a conference] and after I invited him here [to the department]. He accepted my invitation, and some of my friends and I organized a workshop with him in our department. And also, we keep in touch with the people who we met in that workshop. We still talk and ask questions to each other. I mean there is networking in workshops.

As the previous account also pointed out, the connections with the facilitators help students to organize further workshops with these facilitators. During interviews with members of industrial design student communities in different universities, students indicated that they contacted facilitators and invited them to their universities to organize new workshops.

4.3.2.3.2 Networking among Students

My interview data confirm that students give importance to building networks among the workshop participants as well as establishing connections with facilitators of workshops. As I reported before, in workshops, students meet new people from different levels of industrial design education, different universities, and different disciplines. Students communicate with these people and work together in teams during workshops. This situation allows them to develop friendships within the group. As many of the students underlined in interviews, friendship among workshop participants is also carried on after the initial workshop. The students add people they met in workshops as friends on online social network sites such as Facebook and

Instagram which help them to keep connected. Some of the students mentioned that they follow the events on Facebook that their friends participate in and in doing so notice the information about new workshops.

According to my interview data, students keep each other informed about each other's school projects and courses even after the workshop ends. Students believe that they can easily consult a friend from a workshop related to their future projects and ask for their help. Some interviewees indicated that they had already got help from people that they met in workshops for their projects:

G6: [My friend from workshop] was working on a project focused on disabled people. Then, our instructors assigned us a similar project at school. I talked to her and got help from her. She sent me her resources and shared the information and the documents that she gathered during her research with me. I really benefited from her resources during the process.

As the account above illustrates, students share their informational resources with each other related to their projects. They continue learning from each other after the workshop. Moreover, some students mentioned that they came together with team members who they worked with during a workshop several times after the workshop in order to improve their design solutions which they produce in the initial workshop. Besides, some of the interviewees reported that they have gone on to enter design competitions with friends who they met first in workshops. Students also indicated that they came up with different design ideas while working in teams. They needed to focus on some of them to develop an output in workshops. As the following account illustrates, students come together again after the workshops and keep working on their design ideas which they eliminated during a workshop:

B4: I met with the students from different classes in my university and got help from them during my projects. In addition to that, I worked with a friend from Ozyegin University. We were in the same team in [a workshop] before. We had a lot of ideas while working together in the workshop, but we needed to decide on one idea as a team, and we worked on that idea. However, we really liked one of the other ideas, and we keep working on it after the workshop. My friend and I improved that idea and designed a product. We produced it and prepared presentation boards for the product. We didn't aim to sell the product, but our minds stayed with that idea, and we worked on it.

Along with meeting the other participants personally, students claimed that they got to know others' knowledge and skills related to the design field. Students identify others' competences during workshops and consult them when they need help on a subject related to their competences. They also cluster around a new project with people in their networks who have different competences.

B4: I make use of [the networking in workshop] in this way: I build communications with the people that I met in workshops. I observe them and see what they can do. Either they explain what they know and what they can do while we are talking. When we need something related to our projects, I call them, or they call me. We can collaboratively work on new projects. I think the best contribution of workshops is communication. You come together with the people who you would maybe never encounter in daily life and get to know them. You create things together, build communication, and maintain this communication.

Students believe that they would maintain their connections with other students who they met in workshops even after they have graduated from university. Along with the projects developed as students, they expect to work together on new projects in their professional life. In parallel to this view, an interviewee reported:

B4: You may do business together. I mean, you meet the people who you don't know in the workshops and maintain the connection between each other. When you are graduated from university, they would like to work on a project. When they say you "I have a project, [do you want to work on it?]", there is a possibility to work together with them.

Moreover, students think they would make use of their connections in their future professional life even if they would not directly work together. When they graduate from industrial design departments, each student would be working in different sectors, and their expertise would be shaped related to the sector that they work in. Students believe that they can contact their friends to benefit from their knowledge and expertise in different sectors when they need support in their professional projects.

G4: How I can benefit from my workshop participation? I mean, I am sure that the people who I met in the workshops will be useful in my work life. For example, maybe one of them would go towards ceramics. I would be working in somewhere, and I would have a project related to ceramics. I would get information about ceramics in detail from him because I have a communication with him. We have a fellowship. I can easily talk to him about this subject.

Maybe, I wouldn't have troubles to search informational resources related to this subject. I would be able to [learn from him] directly.

Unlike the other accounts, an interviewee drew attention to networking among industrial design students focused on the future of industrial design profession. She thinks that the connections between students as design professionals of the future are important to hold them together in the future. Being familiar with each other in workshops can enable them to collaborate and carry the industrial design profession as a whole to a better position. She put as follows:

M4: When I think about what I want to do in the future, networking is really important for me. Since the workshops help me to broaden my network, I make an effort to participate in workshops as much as possible actively. I think industrial design profession is not in a good situation now. In order to carry the profession to better positions, we [industrial designers] should be together and tell the significance of the industrial design profession to others. I think being together is the only way to succeed on this. Consequently, being together is related to our ties among [industrial designers].

This section has introduced the findings on students' building networks in design workshops. The main points in this section are:

- Students enlarge their networks by meeting with different facilitators and peers. They believe they can consult to their networks for their advice and help when they need in the future. They see their networks as investments for future collaborations both in educational and professional life.
- Students maintain their communications with the people they met in workshops and benefit from their contacts as information sources.
- Students expect their networks to provide internship or job opportunities in the future.

4.4 Summary

This chapter has introduced the analysis of the data obtained from descriptive questionnaires and semi-structured interviews. The chapter started with presenting the findings of the questionnaire, and continued with the analysis of the interview data.

The findings of the questionnaire have revealed that industrial design students show an interest in participating design workshops addressing them. There is a considerable diversity of design workshops based on the subjects covered in workshops, the organizing people or institutions, the facilitators, the duration, and the venue (see Section 4.1). According to the interview data, students have built some criteria mainly based on the subjects and the facilitators to select workshops to participate in among this diversity. First, students decide to participate in a workshop considering the subject of it with the expectation to expand their knowledge about a specific subject, compensate their lack in some subjects covered in formal design education, and explore new design subjects. Second, students choose workshops regarding the facilitators to be able to make use of the facilitators' professional knowledge and experiences, and build networks with them (see Section 4.2).

Moreover, during the interviews, students expressed their acquisitions from design workshops referring to their experiences related to them. The analysis of the interview data has revealed that design workshops have an influence on industrial design students' educational and professional development. First, students' acquisitions from educational perspective have been introduced (see Section 4.3.1). According to the interview data, design workshops create an opportunity for students to expand their knowledge and skills beyond their formal education. Students' motivation to learn a subject is higher when they voluntarily participate in design workshops, as a learning activity for them. The informal environment of workshops helps students to feel freer to develop creative ideas than school atmosphere where they face the pressure of being evaluated by instructors. In addition to the environment, the focus and the duration of design workshops affect students' learning experiences in workshops. In workshops, students not only develop knowledge and skills related to the subject of workshops in a short duration but they also learn to use their time more efficiently. Learning from facilitators and peers is also an important aspect of workshop learning. Students benefit from meeting different perspectives of facilitators and develop new understandings through facilitators' professional knowledge and experiences. Moreover, the interactions between workshop participants and the teamwork among them create a ground for them to learn from each other. Also, students improve their communication and negotiation skills while working together with new people. The knowledge and

skills that students develop in workshops are influenced by the diversity of team members' backgrounds, such as from different levels of industrial design education, from different universities, and different disciplines.

Second, industrial design students expect to benefit from their workshop participation in their professional life. Students believe that they get prepared for professional life in workshops by expanding their knowledge on a variety of subjects, developing teamwork and networking skills, and improving their CVs and portfolios with their workshop experiences (see Section 4.3.2). First, the accounts of interviewees have shown that extending their knowledge on different design subjects help students to take future decisions related which subject to focus on in their professional career. Students value their experiences based on different design subjects covered in workshops and include these experiences in their CV and portfolio. They believe that their workshop experiences contribute to distinguishing themselves from their competitors while being evaluated for a job in the future. Lastly, in workshops, students build new networks with the facilitators and the other participants of workshops. While doing so, they both enlarge their professional networks which they can contact and consult related to the issues in their career and improve networking skills required in professional life.

This chapter has presented the major findings derived from the field study of this thesis. The following chapter will introduce the main conclusions.

CHAPTER 5

CONCLUSIONS

This chapter demonstrates the conclusions of this study. The chapter begins by presenting an overview of the study. Then, the main conclusions derived from the analysis of the data collected through both questionnaires and semi-structured interviews are discussed in light of the current literature. The chapter ends with the limitations of the research, and suggestions for further studies.

5.1 Overview of the Study

In this thesis, first, the relevant literature was reviewed. The skills and knowledge that industrial design students are required to develop were presented referring to contemporary industrial design practice with its process, scope and aim which are going through a transformation, and new roles of industrial designers. Moreover, the current changes in formal design education and increasing emphasis on self-regulated design learning strategies were discussed to point out students' self-development both during and after their education. In relation to students' self-development, extant literature on extracurricular activities and design workshops was demonstrated in order to prepare groundwork for the research (see Chapter 2).

Second, the research design of this study was explained in detail. Although design literature comprises some research on workshops related to design subjects, there is a lack of research that presents a comprehensive understanding of design workshops as extracurricular activities from the perspective of students. Besides, the increasing number of design workshops held in Turkey in last few years, highlights the

significance of carrying out a systematic research on industrial design students' interest and participation in these workshops. For this reason, the aim of this study is trifold: to understand general aspects of students' participation in design workshops as extracurricular activities, to present their expectations and experiences of workshop participation, and to identify how students interpret the effects of workshops on their educational and professional development. In order to fulfill these aims, a two-stage empirical study was conducted. First, descriptive questionnaires were employed with 315 students from five universities in Turkey, and then, semi-structured interviews were conducted with 26 students selected from among the respondents of the questionnaire (see Chapter 3).

Next, the findings derived from the analysis of both the questionnaire data and the interview data were presented. The variety of workshops, students' workshop selection criteria and students' educational and professional acquisitions from workshop experiences were discussed in detail (see Chapter 4).

Lastly, the main conclusions of this thesis will be demonstrated in the following section of this chapter.

5.2 Main Conclusions

The reviewed literature has revealed that industrial design students are required to develop a broad range of skills and knowledge regarding the contemporary design practice. The traditional design education, in a worldwide scope, has started to become adequate to prepare students for their new roles in industrial design profession. When we look at the design education in the scope of Turkey, alongside the broadening skills and knowledge that industrial designers need to develop during their education, we witness a huge increase in the number of industrial design departments at universities and industrial design students in recent years. On the other hand, the number of design educators who are leading experts in their own fields does not evenly increase (Hasdoğan, 2016). For this reason, there is a lack of permanent instructors in industrial design departments in Turkey (Erarkslan, 2013). Moreover, there are differences between students' skills and knowledge developed through formal design education and the required ones for the design industry both in Turkey and all over the world

(Yang et al., 2005; Erarkslan, 2013). For this reason, students' improving their skills and knowledge beyond formal design education becomes crucial.

This study has confirmed that industrial design students are aware of the importance of their self-development considering the requirements of current industrial design practice which enlarges its scope and aim underlined in the new definition of industrial design (WDO, 2016). Therefore, they have commonly participated in design workshops in order to obtain new knowledge and skills they needed. In the last three years, design workshops offered for students as extracurricular activities were considerably rich both in number and diversity. Students have developed various criteria to select workshops to participate in considering their educational and professional life (see Section 4.2). Students' accounts have shown that their workshop experiences contribute to their educational and professional development (see Section 4.3).

This study has revealed that industrial design students make various acquisitions from design workshops. These acquisitions can be classified as knowledge acquisition and skill development. First, students broaden their knowledge about different design concepts and methods, materials and manufacturing techniques, and particular sectors. Second, students develop both professional and soft skills which they require during both their educational and professional life in design workshops. Model making, working with different computer programs, sketching, which are mentioned in student accounts, can be regarded as professional skills that they develop in these workshops. The findings have also shown that students improve soft skills such as communication and negotiation skills, self-assessment, collaboration and teamwork skills.

Based on the findings of the research, this thesis draws two main conclusions considering industrial design students' both educational and professional development. The first conclusion is that industrial design students develop an active design learning through workshops. Different features of workshop environment and students' perspectives towards design workshops influences design learning in workshops. The second conclusion is that teamwork experiences of industrial design students enrich their skills and knowledge development through peer learning,

collaborative work, and networking in workshops. I will present these main conclusions in detail in the following two sections.

5.2.1 Design Learning Through Workshops

As presented in the literature, industrial design pedagogy focuses on ‘learning by doing’ method, through which students work on solutions for specific design problems defined in briefs (Cooper and Press, 1995; Dorst and Reymen, 2004). According to students’ accounts, workshops commonly offer a similar learning experience in parallel to ‘learning by doing’ pedagogy. Design workshops mainly focus on specific design subjects, and students develop technical knowledge and skills related to these subjects during workshops.

Along with the similarity in design pedagogy, students also underlined some differences between workshop learning and formal industrial design education. First, design workshops offer a wider variety of subjects than formal industrial design education covered. Students had an opportunity to learn about new subjects that they do not often encounter in their formal education. Thus, students not only broaden their skills and knowledge related to new design subjects but also evaluate their competences and tendencies related to these subjects. Participation in workshops helps students to decide which subject they would focus on in their professional career and offers an opportunity to enlarge their experiences before graduating from university.

As mentioned before, there are generalist and specialist approaches in design education (Norman and Klemmer, 2015). Similar to the discussions on these approaches in the literature, different attitudes of industrial students while selecting workshops to participate in are seen in interviewees' accounts. Some students were willing to participate in workshops related to various subjects in order to enlarge their general knowledge and skills about different subjects. Some students, on the other hand, preferred to participate in several workshops related to one specific subject. They expect to gain experience on the subject during their education and benefit from those experiences while developing expertise on the subject during their professional life. Compared to the formal design education that follows a pre-determined

curriculum, design workshops give an opportunity to students for developing their own approaches and follow their own path.

Unlike design education at universities, in workshops students have an opportunity to learn a subject from new people. They attach importance to learning from and working with facilitators who are design practitioners in the industry. Since learning from practicing designers and industry is valuable for students' knowledge and skill development, formal design education involves design projects in collaboration with industry (Börekçi, Kaygan and Hasdoğan, 2016; Börekçi and Korkut, 2017). In addition to these projects, industrial design departments include part-time teaching members who are professional designers (Doğu, Ögüt and Er, 2015). During the interviews, students also mentioned about the industry projects and practicing design educators. However, they pointed out that their relations and communications with the design professionals in the informal settings of workshops change their learning experience. Students learn from design professionals, as facilitators of workshops, while sharing their knowledge on the subjects of workshops and leading students during their practices in workshops. In addition to this, students value their informal conversations with design professionals in workshops because they develop new perspectives related to design professionals' past experiences including their successes and failures during their career. It can be concluded that industrial design departments should provide suitable environments to increase the interactions between industrial design students and design professionals in an informal setting.

The reviewed literature underlined the importance of life-long learning as a mindset that industrial designers need to develop considering the broadening scope of the design practice and the changing roles of designers. One of the roles of the new designer that Press and Cooper (2003) describes is being an active learner. Industrial design students, as future's design professionals, are required to develop a mindset on improving themselves on new skills and knowledge through life-long learning. Fisher (2001) relates life-long learning mindset with different dimensions of learning such as self-regulated learning, learning on demand and informal learning. Similarly, autonomous learning including voluntary learning and scanning learning is presented as a form of life-long learning by various researchers (for example, Artis and Harris,

2007; Walumbwa, Cropanzano and Hartnell, 2009; Ployhart, Call and McFarland, 2017; Sutha 2017). This study has revealed that students' learning experiences in workshops show direct similarities with the different aspects of life-long learning. Students' workshop learning will be discussed below related to the forms of self-regulated, voluntary and informal learning.

Self-regulated learning. Powers (2017) underlines the importance of pro-active engagements, choices and goals of students during self-regulated learning. According to students' accounts, students choose to participate in workshops that attract their interests. Their interests in the subjects helped them to engage in learning these subjects actively during the workshops. Similarly, students establish short and long-term learning goals related to the subjects of workshops in two ways through their self-assessment. First, they evaluate their competencies related to the subjects of workshops and set themselves new learning goals to compensate their lacks in the requirements of the subjects. Second, students self-assess themselves by comparing their skills and knowledge with other participants and develop an understanding of what they need to learn.

Voluntary learning. Ployhart et al. (2017) present Artis and Harris's (2007) voluntary learning and scanning learning as autonomous learning models. In voluntary learning, learners define a certain subject to learn and find ways to acquire the knowledge related to it. Scanning learning is different from voluntary learning only in performing open-ended, ongoing researches on a variety of subjects instead of a definite one. In both two models, the content of learning is not directly made available or compulsive to the learner. Sutha (2017) also defines voluntary learning as not mandated or required by someone else than the learner himself. Voluntary learning, as a way of self-development or self-training (Walumbwa et al., 2009), immerses the interest and motivation.

According to the interviewees' accounts, students' learning experiences in workshops are seen as a form of voluntary learning. Students' voluntary participation in design workshops changes their attitudes and motivations towards learning. The findings of this study have revealed that students' learning motivation is higher when they define

their interests or deficiencies on subjects and they voluntarily engage in learning compared to when they are obliged to learn a subject at school. As underlined in the reviewed literature, developing and maintaining motivation is required for effective learning of students. In the light of the discussions in the literature and the findings of this study, it can be concluded that voluntary learning driven by interests or needs of students increases students' motivation to learn and offers students to develop relevant and useful skills and knowledge in workshops.

Informal learning. Chisiu (2013) identifies extracurricular activities as a form of 'formal non-formal education'. Cross (2007) also states that workshops have similarities to formal education since they include a constructed program and curriculum. However, according to students' accounts, design workshops as extracurricular activities provide an informal environment for students to learn. Boud (2001) indicates that sharing the experience of learning from and with others makes learning less burdensome than formal education. In a similar way, in the absence of the pressure of being evaluated by instructors in formal education, students define the workshop environment as enjoyable, relaxed and free. Their accounts demonstrated that they enjoy while learning in workshops and feel freer to try and create new ideas. The informal settings of workshops offer students to learn not only from the tasks assigned to them but also develop new knowledge and encounter new perspectives during the informal communications between both facilitators and other participants.

Considering these aspects of workshop learning in relation to developing students' life-long learning skills, there are important lessons for formal design education to be learned from students' workshop experiences. An overall conclusion derived from these discussions is that following the transformation of the design practice and the new roles of the industrial designer, providing students with opportunities to develop life-long learning skills should become a central concern in the curriculum design of industrial design programs of universities.

5.2.2 Teamwork in Workshops

My findings have shown that students are informed about the subject, the facilitators, the time, and the duration of the workshops before participating in them. They select

workshops mainly based on the subject and the facilitators considering their interest areas and possible contributions of workshops (see Section 4.2). Although they were not generally informed about other participants of workshops, and they did not mention the participants of workshops as one of their workshop selection criteria, surprisingly they relate many of the educational and professional acquisitions from workshops with other workshop participants and the teamwork they carry out during workshops.

From educational perspective, it has been argued that peer learning through teamwork is an important part of student learning in workshops as well as in formal education. Boud (2001) states that during the education at schools, students take advantage of learning from the people that they are familiar with, such as their friends and classmates. Students think that they can acquire information from people who are or have been in similar situations to themselves. On the other hand, my findings have revealed that students value more their learning from 'new' people whom they meet in workshops than their friends at school. Even if it is more challenging than communicating the people they already know, they need to develop communications with the other team members while working together in workshops. Working in teams in workshops enriches the interaction and communication between students, supports learning through shared knowledge, ideas, and experiences.

Confirming Boud's (2001) suggestion that both formal and informal conversations about what students learn inside and outside of the school influence their peer learning, my findings underlined that even the informal talks among peers help them to learn new things during the workshop process. Students learn a lot about various perspectives towards industrial design especially when the teams consist of people with different backgrounds, such as students from different levels of their industrial design education, different universities, and different disciplines, as well as professional designers. The diversity in the backgrounds of team members seems to have a constructive effect on industrial design students' peer learning and teamwork experiences in workshops (see Section 4.3.1.5.2). Thus, in workshops, integrating knowledge from multiple backgrounds, team learning becomes superior to individual learning from the perspective of the learners.

The reviewed literature in Chapter 2 has also demonstrated the importance of collaboration considering the current industrial design practice and education. The new scope of innovation-driven design brings the requirement of working together with various disciplines into industrial design practice. Glaser (2017) indicates that interacting and collaborating with other students in a community setting is required for preparing students for the evolving industrial profession. Britton et al. (2015) also underline the significance of developing collaborative skills of industrial design students during education considering the requirements of current design profession. In order to equip students with the required collaborative skills, the teamwork in studio projects at schools should be constructed including collaboration with students and practitioners from different backgrounds as offered by Kiernan and Ledwith (2014), while considering students' acquisitions in workshops revealed in this study.

Beyond acquiring learning and working skills in teamwork for their education, my findings have presented that students expect to benefit from their teamwork skills in their future professional life. As Design Council (2010) identifies, creativity, flexibility, adaptability, communication skills, negotiation skills, and management and leadership skills are valued by current industrial design practice. Students' acquisitions from teamwork experiences in workshops are parallel to the required skills described by Design Council. Students produce creative solutions to the determined problems in workshops by working together. Bringing each other's ideas and perspectives together during the design process in workshops seem to increase students' creativity. During the teamwork in workshops, students build communications among team members and they negotiate on various ideas to take final decisions to produce an output at the end of the workshop. These experiences of students seem to develop their communication and negotiation skills which they need both in their educational and professional life.

Besides, according to interviewees' accounts, working in teams is more challenging comparing to individual work, since each team member adds a new dimension to work considering their skills, perspectives and working principles. For this reason, students learn to manage the teamwork process and improve their negotiation and management skills in workshops. Students also underlined that getting used to working with different people in workshops help them to adapt themselves to the new teams easily.

They value this adaptability foreseeing that they will be required to work with new people in teams during their professional life. From this point of view, students believe that the employers will consider their teamwork experiences in workshops when they apply for a job in the future. Similar to the students' perspectives, Erarkslan (2013) indicates that the companies look for teamwork skills of designers along with their technical and practical skills related to design while evaluating the job applicants. In the light of students' accounts and the reviewed literature, workshop experiences of students help students to develop skills and knowledge that they will benefit in their professional life.

Along with meeting the facilitators of the workshops, students' communications and interactions with other participants during teamwork in workshops also help students to build new networks. In addition to the other roles of designers in current industrial design practice, Press and Cooper (2003) define the new designer as knowledge worker who is an 'active learner, networker and communicator'. According to them, the new designer needs to develop their knowledge and skills through their life by seeking new resources to do it (see section 2.2). According to the findings of this study, industrial design students seem to consider their networks built in workshops as sources of information and support. Students believe that they can consult their networks and ask for their help towards the situations they encounter during their educational and professional life. They value building networks with both the facilitators and their peers in workshops considering future collaborations with them in order to succeed in their professional life. Bridgstock (2013) reports that social capital is a widely accepted actor of individuals' and enterprises' success in the creative industries and networking is a tool for generating social capital of individuals. According to the results of Design Council's (2010) 'Education and Skill Survey', there is a lack in graduates' communication, entrepreneurial and networking skills that employers look for their future workers. Therefore, students' developing their networking skills through workshops can be beneficial for them in their professional life.

Besides, there was a common belief among students that their contacts can provide them new job offers and affect their acceptance of a job. There are also discussions in

the existing literature on how social capital and connections affect graduates' employability (for example; Mouw, 2003; Bridgstock, 2013). In addition to the effect of their network, students believe that their workshop experiences that they present in their CVs and portfolios make them more employable by distinguishing them from their competitors. It reveals that students are aware of the requirements of competitive industry discussed in the reviewed literature, and they put an effort to develop both their technical and practical skills and knowledge, and soft skills like teamwork, communication, and negotiation as well as to broaden their social and professional networks in order to become more employable in their future life.

To conclude, this thesis has explored the relation between industrial design students' workshop experiences and their educational and professional development. This study has shown that students believe that their workshop participation directly contributes to their self-development from both educational and professional perspectives. In design workshops, industrial design students seem to increase their technical knowledge, design skills and understandings beyond they need to develop throughout their formal education. Besides, students believe that they prepare themselves for the professional life by enlarging their perspectives through and experiences in a diverse number of design subjects and developing communication, teamwork and networking skills in workshops. Therefore, students expect to benefit from their workshop experiences in professional life. Together with the previously discussed conclusions and the reviewed literature, this study argues that formal industrial design education should develop new programs considering different dimensions of students' workshop experiences such as self-regulated, voluntary, informal, and collaborative learning in order to enrich students' self-development during their education.

5.3 Limitations of the Research and Suggestions for Further Studies

As explained in detail in previous chapters, this research was conducted with the students from the selected five universities in Turkey. Within the scope of a master thesis, it was not possible to conduct the research at all industrial design departments in Turkey. In future studies, the research can be expanded through the collection of further data by representing all industrial design departments in Turkey to build an

inventory of design workshops offered for industrial design students' participation. Besides, the changes in the subjects of workshops during years can be investigated in parallel to the emerging trends in industrial design profession.

Moreover, this study focused on the acquisitions of industrial design students. Practicing designers' participation in design workshops, their expectations and motivations considering the requirements of industrial design profession can be investigated as a further study.

Along with the participant's expectations and motivations to participate in a workshop, workshop facilitators' and organizers' aims and approaches related to design workshops also worth to explore in further studies. The differences in pedagogical approaches of facilitators from different backgrounds such as practicing designers and design academicians during design workshops can also be examined in further studies.

REFERENCES

- Aktaş, M. (2016). *Bodrum Tasarım Atölyeleri 2016*. Retrieved January 19, 2018, from <http://blog.koleksiyon.com.tr/tr/bodrum-tasarim-atolyeleri-2016/7039>
- Allen, K. (2013). *The Dean of Parsons: Design Education Must Change*. Retrieved January 6, 2018 from <https://www.archdaily.com/445647/the-dean-of-parsons-design-education-must-change>
- Alparslan, M., & Börekçi, N. A. (2011). Areas of Expertise, Types of Services given and Client Industries of Design Consultancy Firms in Turkey. *METU JFA*, 1, 131-146.
- Artis, A. B., & Harris, E. G. (2007). Self-directed learning and sales force performance: an integrated framework. *Journal of Personal Selling & Sales Management*, 27(1), 9-24.
- Balcıoğlu, T. (2009). Editorial: A Glance at Design Discourse in Turkey. *The Design Journal*, 12(3), 263-266.
- Bartkus, K. R., Nemelka, B., Nemelka, M., & Gardner, P. (2012). Clarifying the meaning of extracurricular activity: A literature review of definitions. *American Journal of Business Education (Online)*, 5(6), 693.
- Bazeley, P. (2013). *Qualitative data analysis: practical strategies*. London: SAGE, 2013.
- Boud, D. (2001). Making the move to peer learning. In Boud, D., Cohen, R. & Sampson, J. (Eds.) (2001). *Peer Learning in Higher Education: Learning from and with each other*. London: Kogan Page (now Routledge), 1-20.
- Boynton, A., & Bole, W. (2011). *Are You an "I" or a "T"?* Retrieved January 16, 2018, from <https://www.forbes.com/sites/andyboynton/2011/10/18/are-you-an-i-or-a-t/#63ffb25f6e88>
- Börekçi, N. A., Kaygan, P., & Hasdoğan, G. (2016). Concept Development for Vehicle Design Education Projects Carried Out in Collaboration with Industry. *Procedia CIRP*, 50, 751-758.

- Börekçi, N. A., & Korkut, F. (2017). Collaborating with External Partners in Industrial Design Education: A Review of Success Factors. In G. Pritchard & N. Lambert (Eds.) *Papers from the LearnX Design London 2017 Conference* (pp.184-191). North Greenwich: Ravensbourne. https://www.academia.edu/35442249/Collaborating_with_External_Partners_in_Industrial_Design_Education_A_Review_of_Success_Factors
- Börekçi, N. A., Özgen Koçyıldırım, D. & Günay, A. (2017). UTAK 2016'nın ardından: konferansa dair genel değerlendirme. In N.A Börekçi, D. Özgen Koçyıldırım & A. Günay (Eds.), *Proceedings of UTAK2016 Sorumluluk, bağlam, deneyim ve tasarım* (pp. xvii), METU.
- Bridgstock, R. (2013). Professional Capabilities for Twenty-First Century Creative Careers: Lessons from Outstandingly Successful Australian Artists and Designers. *International Journal of Art & Design Education*, 32(2), 176-189.
- Britton, E., Simper, N., Leger, A., & Stephenson, J. (2015). Assessing teamwork in undergraduate education: a measurement tool to evaluate individual teamwork skills. *Assessment & Evaluation in Higher Education*, 1-20.
- Broadbent, J. A., & Cross, N. (2003). Design education in the information age. *Journal of Engineering Design*, 14(4), 439-446.
- Brown, T., & Wyatt, J. (2010). Design thinking for social innovation. *Annual Review of Policy Design*, 3(1), 1-10.
- Brown-Libur, H. L., & Porco, B. M. (2011). It's what's outside that counts: Do extracurricular experiences affect the cognitive moral development of undergraduate accounting students? *Issues in Accounting Education*, 26(2), 439-454.
- Carneiro, R., Lefrere, P., Steffens, K., & Underwood, J. (2011). *Self-regulated learning in technology enhanced learning environments: a European perspective*, (Vol. 5). Rotterdam: Sense.
- Carrol, M., Cavagnaro, L. B. & Goldman, S. (2012). Design Thinking. In S. W. Garner & C. Evans (Eds.), *Design and designing: a critical introduction* (pp. 20-32). New York: Berg Publishers.
- Chisiu, C. M. (2013). Extracurricular Activities, an Alternative for Interdisciplinary Learning. *Postmodern Openings Journal*, 4(4), 67-79.
- Creighton, E., & Granville, G. (2013). An out-of-school design learning intervention for second level students. In *DS 76: Proceedings of E&PDE 2013, the 15th International Conference on Engineering and Product Design Education*, Dublin, Ireland, 05-06.09. 2013.

- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications, Incorporated.
- Crisp, A., Dale, J., & Marsh, P. (2013). Enhancing knowledge acquisition. *Proceedings of the 15Th International Conference on Engineering and Product Design Education: Design Education - Growing Our Future, EPDE 2013*, 396-401.
- Cross, J. (2007). *Informal learning: Rediscovering the natural pathways that inspire innovation and performance*. San Francisco, CA, US: Pfeiffer/John Wiley & Sons.
- Cooper, R., Junginger, S., & Lockwood, T. (2011). *The handbook of design management*. Oxford; New York: Berg Publishers, 2011.
- Cooper, R., & Press, M. (1995). *The design agenda: a guide to successful design management*. Chichester; New York: Wiley, c1995.
- Derous, E., & Ryan, A. M. (2008). When earning is beneficial for learning: The relation of employment and leisure activities to academic outcomes. *Journal of Vocational Behavior*, 73(1), 118-131.
- Design Council. (2010). *Multi-disciplinary design education in the UK Report and recommendations from the Multi-Disciplinary Design Network*. London: Design Council.
- Dilek, İ. (2017). *Exploring the perspectives of jury members from different fields of expertise in industrial design competitions* (Unpublished master's thesis). Middle East Technical University.
- Dizik, A. (2017). The next generation of jobs won't be made up of professions. Retrieved January 16, 2018, from <http://www.bbc.com/capital/story/20170424-the-next-generation-of-jobs-wont-be-made-up-of-professions?ocid=ww.social.link.facebook>
- Doğu, D. I., Öğüt, Ş. T., & Er, H. A. (2015). Characterizing Industrial Design Education in Turkey: A Current Synthesis for Future Directions. *Dokuz Eylül Üniversitesi Güzel Sanatlar Fakültesi (Yedi)*, 14(14), 39-50.
- Dorst, K., & Reymen, I. (2004). Levels of expertise in design education. In P. Lloyd, N. Roozenburg, C. McMahon & L. Brodhurst (Eds.), *2nd International Engineering and Product Design Education Conference. The Changing Face of Design Education* (pp. 159-166). Delft, The Netherlands: NIVO.
- ENTA. (n.d.). Hakkımızda. Retrieved January 19, 2018, from <http://enta.org.tr/>

- Erkarslan, O. (2013). A systematic review of the relations between industrial design education and industry in Turkey through SWOT analysis. *The Design Journal*, 16(1), 74-102.
- ETMK. (n.d.). About. Retrieved January 19, 2018, from <http://etmk.org.tr/en/about/>
- Felip, F., Gual, J., & García, M. L. (2016). Improving motivation of Industrial Design students through exercises applied to real cases. *ICERI2016 Proceedings: 9th International Conference of Education, Research and Innovation*. Seville, Spain, November 14-16.
- Fink, A. (2003). *The survey handbook*. Sage.
- Fischer, G. (2001). Lifelong learning and its support with new media. *International encyclopedia of social and behavioral sciences*, 13, 8836-8840.
- Gajendar, U. (2003). Taking care of business: A model for raising business consciousness among design students. In *IDSANational Education Conference*, New York, August, 10–12.
- Garner, S. & Evans, C. (2012). Motivation and the learningscape of design. In S. W. Garner & C. Evans (Eds.), *Design and designing: a critical introduction* (pp. 444-459). New York: Berg Publishers.
- Glaser, M. (2017). From Designer to Thinker-Maker the Evolution of Design. In *IDSANnovation* (pp. 33-36), IDSAN, Herndon, VA.
- Gray, D. E. (2009). *Doing research in the real world*. LA: Sage Publications.
- Hardy, T. (2012). De-Schooling art and design: Illich redux. *International Journal of Art & Design Education*, 31(2), 153-165.
- Hasdođan, G. (2009a). The institutionalization of the industrial design profession in Turkey: Case study- The Industrial Designers Society of Turkey. *The Design Journal*, 12(3), 311-337.
- Hasdođan, G. (2009b). Türkiye’de devletin endüstriyel tasarıma yönelik girişimleri ve Endüstriyel Tasarımcılar Meslek Kuruluşu’nun bu girişimlerdeki rolü. In *Tasarım veya Kriz 4.Ulusal Tasarım Kongresi Bildiri Kitabı* (pp.173-190). İstanbul.
- Hasdođan, G. (2012). Characterizing Turkish design through good design criteria: The case of 'Design Turkey' industrial design awards. *METU Journal of Faculty of Architecture*, 29(1), 171-191.
- Hasdođan (2014). Tasarım Araştırmaları Konferansının Önemi. In P. Kaygan and H. Kaygan (Eds.), *Proceedings of UTAK2014 Eğitim, araştırma, meslek ve sosyal sorumluluk* (pp. ix), METU.

- Hasdođan, G. (2016). Endüstri ürünleri tasarımı mesleđi açısından Türkiye'nin son 27 yılı. *Arredamento Mimarlık* 300, 109-111.
- Heskett, J. (2005). *Design: A very short introduction*. Oxford: Oxford University Press.
- Hewitt, J. (2012). Managing design: a roadmap to a career. In S. W. Garner & C. Evans (Eds.), *Design and designing: a critical introduction* (pp. 429-444). New York: Berg Publishers.
- Holley, K. A. (2009). Special issue: Understanding interdisciplinary challenges and opportunities in higher education. *ASHE Higher Education Report*, 35(2), 1-131.
- Inns, T. (2007). *Designing for the 21st century: Interdisciplinary methods and findings*. Burlington, VT: Gower Publishing.
- Inns, T. (2017). Putting Design into its 21st Century Context, *The Design Journal*, 20(6), 711-717.
- Kaygan, P. & Kaygan, H. (2014). Tasarım Arařtırmalarıyla Endüstriyel Tasarımdaki Dönüşümleri Anlamak. In P. Kaygan and H. Kaygan (Eds.), *Proceedings of UTAK2014 Eğitim, araştırma, meslek ve sosyal sorumluluk* (pp. xiii), METU.
- Keane, L., & Keane, M. (2015). Design THIS Place: Built Environment Education. In *Proceedings of the 3rd International Conference for Design Education Researchers* (Vol: 3), (pp.1034-1057).
- Kiernan, L., & Ledwith, A. (2014). Is design education preparing product designers for the real world? A study of product design graduates in Ireland. *The Design Journal*, 17(2), 218-237.
- Leblanc, T. (2012). Problem finding and problem solving. In S. W. Garner & C. Evans (Eds.), *Design and designing: a critical introduction* (pp. 32-50). New York: Berg Publishers.
- Ledsome, E., & Dowlen, C. (2007). Design coaching. *Proceedings of E and PDE 2007, the 9Th International Conference on Engineering and Product Design Education*, (DS 43: Proceedings of E and PDE 2007, the 9th International Conference on Engineering and Product Design Education), 265-270.
- Lee, N. (2006). Design as a learning cycle: A conversational experience. *Studies in Learning, Evaluation, Innovation and Development*, 3(2), 12-22.
- Lichtman, M. (2014). *Qualitative research for the social sciences*. Thousand Oaks, California: SAGE Publications, Inc., 2014.

- Martin, B., & Hanington, B. M. (2012). *Universal methods of design: 100 ways to research complex problems, develop innovative ideas, and design effective solutions*. Beverly, MA: Rockport Publishers, 2012.
- Martinsuo, M. (2009). Teaching the fuzzy front end of innovation: Experimenting with team learning and cross-organizational integration. *Creativity and Innovation Management*, 18(3), 147-159.
- Matthews, B., & Ross, L. (2010). *Research methods: a practical guide for the social sciences*. New York, NY: Pearson Longman, 2010.
- Mccullagh, K. (2010). *Is It Time to Rethink the T-Shaped Designer?* Retrieved January 16, 2018, from <http://www.core77.com/posts/17426/is-it-time-to-rethink-the-t-shaped-designer-17426>
- McGuirk, P. M. & O'Neill, P. (2016). Using questionnaires in qualitative human geography. In I. Hay (Eds.), *Qualitative Research Methods in Human Geography* (pp. 246-273). Don Mills, Canada: Oxford University Press.
- METU ID Bulletin. (2017). Retrieved January 19, 2018 from <https://id.metu.edu.tr/2017/04/05/16th-metu-id-bulletin-is-out/>
- Ming Chia, Y. (2005). Job offers of multi-national accounting firms: The effects of emotional intelligence, extra-curricular activities, and academic performance. *Accounting Education*, 14(1), 75-93.
- Mouw, T. (2003). Social capital and finding a job: do contacts matter?. *American sociological review*, 68(5), 868-898.
- Muratovski, G. (2016). *Research for designers: a guide to methods and practice*. London: Sage Publications, 2016.
- Norman, D. (2010). Why design education must change. *core77*, 11, 26.
- Norman, D., & Klemmer, S. (2015) *State of Design: How Design Education Must Change*. Retrieved October 11, 2017, from <https://www.linkedin.com/pulse/20140325102438-12181762-state-of-design-how-design-education-must-change?trk=mp-reader-card>.
- O'Kane, B. (2012). Building bridges to new realms. In S. W. Garner & C. Evans (Eds.), *Design and designing: a critical introduction* (pp. 393-411). New York: Berg Publishers.
- Oygür, I. (2017). *İnegöl'de Neler Oluyor? I'm Design 2017 Atölye Çalışması*. Retrieved January 19, 2018, from <https://xxi.com.tr/i/inegolde-neler-oluyor-im-design-2017-atolye-calismasi>

- ÖSYM (2016). *Öğrenci seçme ve yerleştirme sistemi (ÖSYS) yükseköğretim programları ve kontenjan kılavuzu*. Retrieved January 10, 2018 from <http://dokuman.osym.gov.tr/pdfdokuman/2016/LYS/TERCIH/OSYSKONTKILAVUZU29072016.pdf>
- Özçetin, S. (2008). *The role and significance of design exhibitions in the history of industrial design in Turkey: 1989-2008* (Unpublished master's thesis). Middle East Technical University.
- Paris, S. G., & Paris, A. H. (2001). Classroom Applications of Research on Self-Regulated Learning. *Educational Psychologist*, 36(2), 89-101.
- Ployhart, R. E., Call, M. L., & McFarland L. A. (2017). Autonomous learning, human capital resources and value capture. In J. E. Ellingson, & R. A. Noe (Eds.), *Autonomous learning in the workplace* (pp. 287-305). New York: Routledge, Taylor & Francis Group.
- Powers, M. N. (2017). *Self-regulated design learning: a foundation and framework for teaching and learning design*. New York: Routledge, 2017.
- Press, M., & Cooper, R. (2003). *The design experience: the role of design and designers in the twenty-first century*. Burlington, VT: Ashgate.
- Richards, L. (2015). *Handling qualitative data: a practical guide*. Los Angeles: SAGE, 2015.
- Roald, J. (2006). Design leadership. In *5th Nordcode Seminar: Connecting Fields*, Oslo, May 10-12.
- Roulin, N., & Bangerter, A. (2013). Students' use of extra-curricular activities for positional advantage in competitive job markets. *Journal of Education and Work*, 26(1), 21-47.
- Ruohui, L. (2016). The Exploration of Modes for College Design Workshops Based on Cloud Platform. In *Measuring Technology and Mechatronics Automation (ICMTMA), 2016 Eighth International Conference* (pp. 778-781). IEEE.
- Sagitova, R. (2014). Students' Self-education: Learning to Learn Across the Lifespan. *Procedia - Social and Behavioral Sciences*, 152(ERPA International Congress on Education, ERPA Congress 2014, 6-8 June 2014, Istanbul, Turkey), 272-277.
- Selloni, D. & Corubolo, M. (2017) Design for Social Enterprises: How Design Thinking Can Support Social Innovation within Social Enterprises, *The Design Journal*, 20(6), 775-794.

- Seow, P. S., & Pan, G. (2014). A literature review of the impact of extracurricular activities participation on students' academic performance. *Journal of Education for Business*, 89(7), 361-366.
- Shim, S. (2017). *What is Industrial Design?* Retrieved January 20, 2018, from <http://www.idsa.org/events/what-id>
- Smith, J., & Furbershaw, G. (2017). Beauty, Ingenuity, Charisma & Impact. In *IDSIA Innovation* (pp. 27-29), IDSIA, Herndon, VA.
- Stevens, J., Mueller-Russo, K., Fujikawa, M., Childs, P.R., Pennington, M., Lundberg, S., Diskin, S., Inakage, M. & Brand, A. (2015). Design Without Borders: A Multi-Everything Masters. In *Proceedings from 3rd International Conference for Design Education Researchers* (Vol. 3, No. 3, pp. 1255-1266). Aalto University School of Arts, Design and Architecture.
- Sutha, J. (2017). Exploring the role of adult learning theory in understanding employees' participation in non-mandatory training. In F. G. Giuseffi (Eds), *Emerging self-directed learning strategies in the digital age* (pp.48-81). IGI Global.
- Szuc, D., & Wong, J. (2011). *The Design Workshop: Bringing It All Together*. Retrieved January 16, 2018, from <https://www.uxmatters.com/mt/archives/2011/08/the-design-workshop-bringing-it-all-together.php>
- TAK Nedir? (n.d.). Retrieved January 19, 2018, from <http://takortak.org/tak-nedir.html>
- Tezel, E. (2011). Industrial design in Turkey: A historical segmentation in policy, industry and design. *Intercultural Understanding*, 1, 99-103.
- Trowsdale, D. & Clark, B. (2013). Articulating excellence in the context of design and employability. *Proceedings of E&PDE 2013, the 15th International Conference on Engineering and Product Design Education*, Dublin, Ireland, 05-06.09.2013, 530-535.
- Turkey Design Foundation. (n.d.). *Program*. Retrieved January 19, 2018, from <http://tasarimvakfi.org/TR/Events/160-Program/>
- UMÖB17. (2017). Retrieved January 19, 2018, from <http://www.umobonyedi.com/umoeb-nedir-1>
- Walumbwa, F. O., Cropanzano, R., & Hartnell, C. A. (2009). Organizational justice, voluntary learning behavior, and job performance: A test of the mediating effects of identification and leader-member exchange. *Journal of Organizational Behavior*, 30(8), 1103-1126.

- WDO: World Design Organization (2016). *Definition of Industrial Design*. Retrieved January 16, 2018, from <http://wdo.org/about/definition/>
- Yahsiworkshops. (n.d.). Retrieved January 19, 2018, from <http://yahsiworkshops.com/yahsibey-hakkinda>
- Yang, M. Y., You, M., & Chen, F. C. (2005). Competencies and qualifications for industrial design jobs: Implications for design practice, education, and student career guidance. *Design studies*, 26(2), 155-189.
- Yee, J., Jefferies, E., & Tan, L. (2013). *Design transitions: Inspiring stories, global viewpoints, how design is changing*. Amsterdam, the Netherlands: BIS Publishers.
- YEKON: Yaratıcı Endüstriler Konseyi. (n.d.). Retrieved January 19, 2018, from <http://www.yekon.org/projeler.htm>

APPENDIX A

QUESTIONNAIRE (TURKISH)

Tasarım Çalıştayları Değerlendirme Anketi

Değerli Katılımcı,

Adım Zeliha Didem Yanpar. ODTÜ Endüstri Ürünleri Tasarımı Bölümü'nde yüksek lisans öğrencisi ve araştırma görevlisiyim. Bu anket; Yrd. Doç. Dr. Pınar Kaygan'ın danışmanlığında yürütülen ve öğrencilerin ders dışı bir etkinlik olarak düzenlenen çalıştaylara bakış açısını araştıran tez çalışmamın bir parçasıdır. Anket sorularına vereceğiniz cevaplar araştırmaya büyük katkı sağlayacaktır. Paylaşacağınız bilgiler bu tez çalışması kapsamında, konferans sunumlarında, akademik makale ve sunumlarda kullanılacak olup, kişisel bilgileriniz gizli tutulacaktır. Çalışma ile ilgili detaylı bilgi almak isterseniz 'dyanpar@metu.edu.tr' adresinden bana ulaşabilirsiniz. Katılımınız için çok teşekkür ederim.

Okulunuz: _____

Sınıfınız: _____

Son 3 yılda ders dışı olarak (lisans eğitiminiz kapsamında yürütülmeyen) tasarım alanıyla ilgili katıldığımız çalıştayları aşağıdaki tabloda listeleyiniz. Lütfen çalıştaylar ile ilgili hatırlayabildiğiniz kadar detaylı bilgi vermeye çalışın.

Çalıştayın Başlığı	Konusu	Yürütücüsü	Tarihi	Süresi(gün)	Yeri

Listelediğiniz çalıştaylar arasında özellikle memnun kaldığınız çalıştay(lar) varsa başlıklarını yazıp memnun kalma nedenlerinizi belirtiniz.

Bugüne kadar herhangi bir çalıştaya katılmadıysanız, katılmama sebeplerinizi (var ise) belirtiniz.

Tasarım alanıyla ilgili katılmak isteyeceğiniz çalıştay konularını (var ise) belirtiniz.

Çalıştaylar dışında tasarım alanıyla ilgili katıldığınız ders dışı etkinlikler varsa (seminer, konferans, panel, kurs vb.) belirtiniz.

Bu araştırma kapsamında, doldurmakta olduğunuz ankete ek olarak öğrencilerin tasarım çalıştaylarına yaklaşımlarını anlamak amacıyla, öğrenciler ile görüşmeler yapmayı planlıyorum. Görüşmeler yaklaşık 20 dakika sürecek olup, yüz yüze ya da Skype üzerinden katılımcılar için uygun olan bir zamanda gerçekleştirilecektir. Bu görüşmelere katılarak sunacağınız katkı, bu araştırma için çok önemli bir yere sahiptir.

Görüşmelere katılmak isterseniz, lütfen aşağıdaki uygun satırlara isim ve e-posta bilgilerinizi ekleyiniz. Görüşme randevusu için sizinle bu adresten iletişime geçebilirim.

İletişim için: Ad/Soyad: _____
E-posta: _____

APPENDIX B

QUESTIONNAIRE DATA SHEET

A	B	C	D	E	F	G	H	I	J	K	L	M
1	ÇALIŞTAY BAŞLIĞI	KONUSU	TARİHİ	SÜRESİ YERİ	katılan sayısı							
	ikon eğitimi sektöründe kullanımı, plakatogram	DOUB.CO	2017 MART 1	1 AU MİMTAS	17	a3_19	a4_1	a4_3	a4_11	a4_12	a4_15	
2	İKON 101											
3	OVUNLAŞIRMA ÖGELERİ İLE YENİDEN KURGULANMIŞ "BRIEF" TASARIMI	DUYUSAL TÜTÜNÇÜ DE	2017 OCAK 13	1 AU MİMTAS	12	a4_3	a4_13	a4_15	a4_18	a4_19	a4_22	
4	KAFA.AÇ - YARATICI DÜŞÜNME VE YAZMA ÇALIŞTAYI	RAUF KOSEMEN	2015 MART	1 AU MİMTAS	10	a3_1	a4_1	a4_4	a4_5	a4_10	a4_13	
5	STRATİJİ VE YARATICILIK	FARUK ATALAYER	2016 ARALIK 18	1 AU MİMTAS	10	a3_11	a4_4	a4_5	a4_7	a4_11	a4_14	
6	2016 10. ULUSLARARASI PİŞİRME TOPRAK SEMPOZYUMU	ASL ANDERİM, TEPEBAŞI BELEDİYESİ, TASARIM KULÜBÜ	2016 EYLÜL 24	2 ESKİŞEHİR ESKİ ETİ FABRİKASI	9	a3_12	a3_14	a3_15	a3_16	a3_21	a4_7	
7	DESİGN THINKING	ÖZLEM VALİM	2016 ARALIK 2	1 AOF	9	a3_11	a4_4	a4_5	a4_7	a4_8	a4_24	
8	ÜRÜN TASARIMI SÜRECİNDE BİO-SÜREÇ ÇALIŞTAYI	MUSTAFA ÖZDOĞAN	2015	1 AU MİMTAS	9	a3_1	a4_2	a4_7	a4_8	a4_14	a4_21	
9	OTOMOBİL TASARIM ÇALIŞTAYI	SEDAT ÖZTÜRK	2016 ARALIK 23	1 AU MİMTAS	8	a3_8	a3_11	a4_4	a4_5	a4_16	a4_17	
10	YARATICILIK VE RENK ÇALIŞTAYI	FARUK ATALAYER	2015 MAYIS	1 AU MİMTAS	7	a3_1	a4_3	a4_4	a4_5	a4_7	a4_11	
11	2015 9. ULUSLARARASI PİŞİRME TOPRAK SEMPOZYUMU	ya doğru bildiklerimiz var GÖKHAN AKDENİZ	2015 EYLÜL	2 ESKİŞEHİR ESKİ ETİ FABRİKASI	6	a3_10	a3_25	a3_26	a4_1	a4_39	a4_41	
12	AMBALAJ TASARIM ÇALIŞTAYI	GAMZE GÜVEN	2015 MART	1 AU MİMTAS	6	a3_2	a4_13	a4_19	a4_34	a4_36	a4_41	
13	AYDINLATMA ÇALIŞTAYI	ALPER BÖLER	2014 KASIM	2 AU MİMTAS	5	a2_2	a4_7	a4_8	a4_14	a4_34		
14	TM DESIGN	EMMANUEL RUFFO, İMOS (NEGÖL MOBİLYA)	2016 MART	3 İNEGÖL	5	a3_2	a3_10	a3_14	a3_22	a4_15		
15	METAFORU ANLAMA	BURÇAK EVREN	2015 ARALIK 20	1 AU MİMTAS	5	a4_4	a4_5	a4_11	a4_19	a4_46		
16	MIND THE BUG	VUF SUMMIT, ONARANLAR KULÜBÜ, TRIPEDIA	2016 ARALIK 10	1 TRIPEDIA TASARIM	5	a3_18	a3_27	a4_16	a4_20	a4_30		
17	UTAK 2016 ÜRÜN TASARIMINDA ARKA PLAN	HUMANUR BAĞLI	2016 EYLÜL	1 ODTU MİMARLIK	5	a4_1	a4_2	a4_3	a4_21	a4_26		
18	UTAK 2014 OYUN TASARIMI ÇALIŞTAYI	FUSUN CURAĞOĞLU	2016 EYLÜL	1 ODTU MİMARLIK	5	a3_3	a3_4	a3_5	a3_6	a4_18		
19	ESKİZ ÇALIŞTAYI	SERVET SIK	2015 MART	1 TOBB	4	a3_24	a4_23	a4_31	a4_33			
20	UTAK 2014 OYUN TASARIMI ÇALIŞTAYI	HAKAN DİNİZ	2014 EYLÜL	1 ODTU MİMARLIK	4	a4_1	a4_2	a4_8	a4_13			
21	UTAK 2016 TASARIM ÇİZİMİ VE MAKET ÜRETİMİ	ENGIN KAPKIN,	2016 EYLÜL	1 ODTU MİMARLIK	4	a3_3	a3_4	a3_5	a3_6			
22	AMBALAJ TASARIM ÇALIŞTAYI	LEVANT BURGAZLI	2014 SUBAT	1 AU MİMTAS	3	a4_1	a4_2	a4_4	a4_45			
23	AUTODESK FUSION 360	EVREN ARIN	2014 MAYIS	1 AU MİMTAS	3	a4_3	a4_8	a4_15				
24	BTF-14 İSTİLA	DUNGU TUNTAŞ, YİĞİT	2014 NISAN	3 OSMANGAZİ LİNİ	3	a4_6	a4_20	a4_36				
25	ESKİZ ÇALIŞTAYI	ENGIN KAPKIN	2016 NISAN 30	1 AU MİMTAS	3	a4_17	a4_31	a4_37				
26	İÇERDE OYUNCAK VAR	cezaevindeki çocuklar için ÖNEMŞİÖRÜZ	2016 NISAN 30	1 AU MİMTAS	3	a4_11	a4_14	a4_19				
27	KAFA.AÇ	mind map, kendi bayraklarını yapma	2015 ARALIK 26	2 AU MİMTAS	3	a4_12	a4_20	a4_46				
28	UTAK 2016 OVUNLAŞIRMA ÖGELERİ İLE YENİDEN KURGULANMIŞ "BRIEF" TASARIMI	DUYUSAL TÜTÜNÇÜ DEMİRBAŞ, SEBNEM TİMUR OĞUT	2016 EYLÜL	1 ODTU MİMARLIK	3	a3_3	a3_4	a4_18				

Figure B.1 An Example of Questionnaire Data Sheet

APPENDIX C

Table C.1: The Questionnaire Data- Workshop List

ÇALIŞTAYIN ADI	KONU	YÜRÜTÜCÜ	TARİH	SÜRE	YER	KATILIMCI SAYISI
İKON 101	ikon eğitimi sektörde kullanımı, piktogram	DOUB.CO	2017 MART 1	1	AU MİMTAS	17
TEMEL TASARIM ÇALIŞTAYI	tirtil soyutlama	DİLEK AKBULUT	2014-15	1	GAZİ UNİ	16
PİZZA ÇALIŞTAYI	pizza sipariş dağıtımını hızlandırmak	YETKİN YAZICI	2016 NİSAN 14	2	MİLANO İED	16
I'M DESIGN	mobilya	EMMANUEL RUFFO, IMOS (İNEGÖL MOBİLYA)	2016 MART	3	İNEGÖL	13
OYUNLAŞIRMA ÖĞELERİ İLE YENİDEN KURGULANMIŞ "BRIEF" TASARIMI	interaktif ortamda föy paylaşımı, başlık altında öğrenci davranışları	DUYSAL TÜTÜNCÜ DEMİRBAŞ	2017 OCAK 13	1	AU MİMTAS	12
EMPATİ	görme bozukluğu ve eklem rahatsızlığı olan insanların yerine geçme	LENA LORENTZEN	2015 EKİM	1	İTÜ	11
TEMEL TASARIM ÇALIŞTAYI	ağaç soyutlama	DİLEK AKBULUT	2014	1	ODTÜ MİMARLIK	11
DESIGN THINKING		ÖZLEM YALIM	2016 ARALIK 2	1	AÖF	10
KAFA AÇ - YARATICI DÜŞÜNME VE YAZMA ÇALIŞTAYI	yaratıcılık	RAUF KÖSEMEN	2015 MART	1	AU MİMTAS	10
STRAFİGO VE YARATICILIK		FARUK ATALAYER	2016 ARALIK 18	1	AU MİMTAS	10
UTAK 2014 OYUN TASARIMI ÇALIŞTAYI		HAKAN DİNİZ	2014 EYLÜL	1	ODTÜ MİMARLIK	10
MARKER ÇALIŞTAYI	marker ile çizim	YAKUP SENEM	2017	1	ANKARA	9
ÜRÜN TASARIMI SÜRECİNDE BİO-SÜREÇ ÇALIŞTAYI	biyomimikri	MUSTAFA ÖZDOĞAN	2015	1	AU MİMTAS	9
AUTODESK FUSION 360 BASICS	fusion 360 3d modelleme	GÖKHAN KAYA	2014 EKİM	1	BAHÇEŞEHİR UNİ	9
2016 10. ULUSLARASİPİŞMİŞ TOPRAK SEMPOZYUMU ÇALIŞTAY: BAŞKA YAKLAŞIM	pişmiş toprak	ASLI AYDEMİR, TEPEBAŞI BELEDİYESİ, TASARIM KULÜBÜ	2016 EYLÜL 24	2	ESKİŞEHİR ESKİ ETİ FABRİKASI	9
FUSION 360	engelliler için kullanıcı aparatı	ALTAR TEKNOLOJİ	2015	30	GAZİ UNİ	9
OTOMOTİV ESKİZ ÇALIŞTAYI		SERDAR SOYAL	2015	1	ODTÜ MİMARLIK	9
UTAK 2014 SALT İŞLEV ÇALIŞTAYI	temel tasarımda salt işlev çalışması	HÜMANUR BAĞLI	2014 EYLÜL	1	ODTÜ MİMARLIK	9
UTAK 2014 MARKA ANALİZİ		ISUZU	2014	2	ODTÜ MİMARLIK	9
OTOMOBİL TASARIM ÇALIŞTAYI	otomobil tasarım	SEDAT ÖZTÜRK	2016 ARALIK 23	1	AU MİMTAS	8
COĞRAFİ İLHAM ATÖLYESİ	bodrum pazarları-mobilyalar	TASARIM VAKFI	2017 OCAK	10	BODRUM	8

Table C.1: The Questionnaire Data- Workshop List (Cont'd)

ÇALIŞTAYIN ADI	KONU	YÜRÜTÜCÜ	TARİH	SÜRE	YER	KATILIMCI SAYISI
FUSION 360	çocuklar için bisiklet tasarımı	ALTAR TEKNOLOJİ	2016	14	GAZİ UNİ	8
OYUN TASARIM ÇALIŞTAYI	oyun oyuncak	HAKAN DİNİZ, OTT	2014	1	ODTÜ	8
YARATICILIK VE RENK ÇALIŞTAYI	yaratıcılık	FARUK ATALAYER	2015 MAYIS	1	AU MİMTAS	7
KIZILTOPRAK ÇALIŞTAYI	müzedeki ürünlerden modern ürün tasarlama	SEÇİL ŞATIR, HİTİT ÜNİVERSİTESİ	2015 EKİM	7	ÇORUM	7
AYDINLATMA TASARIMI	temel tasarım	ÖZDEN SEVGÜL	2017	2	GAZİ UNİ	7
KENTSEL MEKANLARDA İNOVASYON	Türkiye inovasyon haftası kapsamında, şehir için tasarım	GAMZE GÜVEN	2015 ARALIK	2	İSTANBUL	7
UTAK 2016 TASARIM ÇİZİMİ VE MAKET ÜRETİMİ		ENGİN KAPKIN, LEVENT BURGAZLI	2016 EYLÜL	1	ODTÜ MİMARLIK	7
UTAK 2016 ÜRÜN TASARIMINDA ARKA PLAN		FÜSUN CURAOĞLU	2016 EYLÜL	1	ODTÜ MİMARLIK	7
ENGAGE	kalıcı süregelen ürün deneyimi	ARMAĞAN KARAHANOĞLU YEKTA BAKIRLIOĞLU	2016 KASIM	1	TOBB UNİ	7
AMBALAJ TASARIM ÇALIŞTAYI	ambalaj	GAMZE GÜVEN	2015 MART	1	AU MİMTAS	6
DALİN UP CYCLE PROJECT	Dalin'in 750 ml şişesinden 0-3 ve ya 4-10 yaş arası çocuklara ürün yapmak	İŞİL İLHAN ÖZGÜR	2016 NİSAN	7	BAHÇEŞEHİR UNİ	6
BAU-FSH BASKET MAKING WORKSHOP	mültecilerin hayatını sembolize eden ürünler	ELÇİN TEZEL, BAU-FSH	2016 MAYIS	5	BAU BEŞİKTAŞ KAMPUSU	6
2015 9. ULUSLARARASI PİŞMİŞ TOPRAK SEMPOZYUMU	ya doğru bildikleriniz yanlışsa	GÖKHAN AKDENİZ	2015 EYLÜL	2	ESKİŞEHİR ESKİ ETİ FABRİKASI	6
3D DESTEKLİ OYUN VE OYUNCAK TASARIMI	oyuncak tasarlama ve 3d printer ile üretme	HAKAN DİNİZ	2016 HAZİRAN	1	İSTANBUL SALT GALATA	6
UTAK 2016 TASARIMCILAR İÇİN GİRİŞİMCİLİK: KANVAS İŞ MODELİ ÇALIŞTAYI		HANDAN TEMELTAŞ AYŞEGÜL ATAMAN	2016 EYLÜL	1	ODTÜ MİMARLIK	6
HURDAHANE WORKSHOP	ağşap geridönüşümü	HURDAHANE	2017 ŞUBAT 17	1	ATÖLYE ÇAĞLAYAN	5
METAFORU ANLAMA	filmlerin metaforu	BURÇAK EVREN	2015 ARALIK 20	1	AU MİMTAS	5
AYDINLATMA ÇALIŞTAYI	aydınlatma	ALPER BÖLER	2014 KASIM	2	AU MİMTAS	5
UTAK 2016 AÇIK TASARIM, MUTFAK PRATİKLERİ		SENEM TURHAN, YEKTA BAKIRLIOĞLU, DİLUBA OĞUR	2016 EYLÜL	1	ODTÜ MİMARLIK	5
UTAK 2016 SİMÜLASYON VE KARAKTER		YASEMİN AFACAN	2016 EYLÜL	1	ODTÜ MİMARLIK	5
UTAK 2016 DENEYİM HARİTALAMA	görseller ile veri sentezi	ENGİN KAPKIN	2016 EYLÜL	1	ODTÜ MİMARLIK	5
ZAMAN KAPSÜLÜ 4K	bugünü geleceğe nasıl anlatırız?	ANIL ILGAZ, OTT	2015	2	ODTÜ MİMARLIK	5

Table C.1: The Questionnaire Data- Workshop List (Cont'd)

ÇALIŞTAYIN ADI	KONU	YÜRÜTÜCÜ	TARİH	SÜRE	YER	KATILIMCI SAYISI
BAU-FSH SALZBURG BOT TASARIM ÇALIŞTAYI	mülteciler için bot tasarımı	FSH	2016 ARALIK	7	SALZBURG FSH	5
MIND THE BUG	şehrin buglarını bulma	VUF SUMMIT, ONARANLAR KULÜBÜ, TRİPEDİA TASARIM	2016 ARALIK 10	1	TRİPEDİA TASARIM	5
DESIGN NOW AUTODESK DIGITAL TASARIM KAMPI	traktör	AUTODESK	2017	1	GAZİ UNİ	4
YILBAŞI ÇALIŞTAYI	yeni yıl dileklerini 3 boyutlu yapma	GAZİ TASARIM VE İNOVASYON TOPLULUĞU	2016	1	GAZİ UNİ	4
OFF CUTS	metal plaka atıklarıyla ürün değerlendirme	MELODİ BOZKURT, ERİN TÜRKÖĞLU, MUZZ DESIGN	2014	7	İSTANBUL BIENAL	4
3DÖRTGEN 3D PRINTER ÇALIŞTAYI	3d printer kullanımı	3D DURAK	2016 OCAK	1	İSTANBUL LEVENT	4
KWORKS KALIP TASARIMI ÇALIŞTAYI	plastik enjeksiyon	EREN KAHRAMAN	2017 ŞUBAT 4	1	İSTANBUL ŞİŞLİ	4
FUSION 360	software tanıtımı	AUTODESK EKİBİ	2014	1	ODTÜ MİMARLIK	4
OYUN ÇALIŞTAYI HASBRO	oyun	HAKAN DİNİZ	2015	1	ODTÜ MİMARLIK	4
UTAK 2016 DİJİTAL ÜRÜN TASARIMI		HÜRRİYET	2016 EYLÜL	1	ODTÜ MİMARLIK	4
AUTODESK FUSION	fusion programı	OTT	2016 KASIM	2	ODTÜ MİMARLIK	4
UTAK 2016 OYUNLAŞIRMA ÖĞELERİ İLE YENİDEN KURGULANMIŞ "BRIEF" TASARIMI		DUYSAL TÜTÜNCÜ DEMİRBAŞ, ŞEBNEM TİMUR ÖĞÜT	2016 EYLÜL	1	ODTÜ MİMARLIK	4
BTF'14 İSTİLA	işgalci göz	DUYGU TÜNTAŞ, YİĞİT ACAR	2014 NİSAN	3	OSMANGAZİ UNİ.	4
MEDS'15 BACK TO NATURE "CITY LIGTS BEYOND"		MEETING OF DESIGN STUDENTS	2015 AĞUSTOS	15	SİRBİSTAN	4
ESKİZ ÇALIŞTAYI	eskiz çalışması, görünüşler üzerine çalışma	SERVET IŞIK	2015 MART	1	TOBB	4
ARÇELİK CREP WORKSHOP	buzdolabı aksesuarları	DUYSAL TÜTÜNCÜ DEMİRBAŞ	2015	1	ARÇELİK-ESKİŞEHİR	3
AMBALAJ TASARIM ÇALIŞTAYI	ambalaj tasarımı	GAMZE GÜVEN	2014 ŞUBAT	1	AU MİMTAS	3
AUTODESK FUSION 360	fusion 360	EVREN ARIN	2014 MAYIS	1	AU MİMTAS	3
İÇERDE OYUNCAK VAR	cezaevindeki çocuklar için oyuncak tasarımı	ÖNEMSIYORUZ	2016 NİSAN 30	1	AU MİMTAS	3
KAFA AÇ	mind map, kendi bayraklarını yapma		2015 ARALIK 26	2	AU MİMTAS	3
DİJİTAL GÖRSELLEŞTİRME	photoshop	ENGİN KAPKIN	2016	4	AU MİMTAS	3
ESKİZ ÇALIŞTAYI	eskiz	ENGİN KAPKIN			AU MİMTAS	3
ESKİZ ÇALIŞTAYI	eskiz	SELİM GENÇOĞLU	2013	1	GAZİ UNİ	3
FUSION 360	3 boyutlu modelleme		2014	3	GAZİ UNİ	3
FUSION 360	3 boyutlu modelleme		2017	3	GAZİ UNİ	3
IDEO KULLANICI ODAKLI TASARIM ÇALIŞTAYI	kullanıcı odaklı tasarım	DOĞAN ŞEKERCİOĞLU	2016 MART 3	1	İTÜ	3

Table C.1: The Questionnaire Data- Workshop List (Cont'd)

ÇALIŞTAYIN ADI	KONU	YÜRÜTÜCÜ	TARİH	SÜRE	YER	KATILIMCI SAYISI
UTAK 2016 TÜRKİYE'DEKİ MÜLTECİLERİN KALICI VE GEÇİCİ YAŞAMLARI İÇİN TASARIM ÖNERİLERİ GELİŞTİRME ÇALIŞTAYI		ASLIHAN YILMAZ	2016 EYLÜL	1	ODTÜ MİMARLIK	3
KAĞIT UÇAK YAPIM ÇALIŞTAYI	tanışma ve kağıt uçak sonrasında yarışma	OTT		1	ODTÜ MİMARLIK	3
TEZ ARAŞTIRMASI	tasarım eğitimi	AYKUT COŞKUN	2015	1	ODTÜ MİMARLIK	3
UTAK 2016 GELECEK KÜRELERİ			2016 EYLÜL	1	ODTÜ MİMARLIK	3
BAU FSH WEAVING TECHNIQUES WORKSHOP	örgü teknikleri kullanarak ürün tasarımı	FSH	2015 ARALIK	5	SALZBURG FSH	3
UMOB'15	kırsal üretim sistemleri	CAN GÜVENİR	2015 YAZ	10	SEFERİHİSAR İZMİR	3
OYUN TASARIMI	oyuncak	HAKAN DİNİZ	2016	1	TOBB UNI	3
3. TASARIM BİENALİ: ARE WE HUMAN?		HÜMANUR BAĞLI		10		3
GÜRÜLTÜ-SESSİZLİK VE SES MANZARALARI ÜZERİNE	ses- sessizlik	CAN KAZAZ	2015	1	AU	2
BİOTASARIM	biomekanik bioteknik biotasarım	SEÇİL ŞATIR	2015	1	AU MİMTAS	2
DESIGN NOW	dijital tasarım atölyesi	AUTODESK	2016 ARALIK 24	1	AU MİMTAS	2
ESKİZ ÇALIŞTAYI	eskiz	LEVENT BURGAZLI	2015 ARALIK 24	1	AU MİMTAS	2
HACİM TASARIMI	5 tenis topu 1 spor ayakkabı nasıl bir hacimde	ARÇELİK		1	AU MİMTAS	2
OYUN TASARIM ÇALIŞTAYI	eldeki malzemelerle oyuncak tasarımı		2014 NİSAN	1	AU MİMTAS	2
OYUN VE OYUNCAK TASARIMI	board game	HAKAN DİNİZ	2015 MART	1	AU MİMTAS	2
FEYZ	sektörlerle buluşma	AU TASARIM KULÜBÜ	2016 ŞUBAT	1	AU SALON 2000	2
AMBALAJ TASARIMI ÇALIŞTAYI	Komili zeytinyağı yeni ambalajı	GAMZE GÜVEN		1	BAU	2
YERDEN YÜKSEK DOMİNO	çocuklarla mimari yaklaşımlar	SUNAY PAÇAOĞLU, DUYGU SAYGIN, DENİZ ENGİN	2015	1	BURSA GÖLYAZI	2
FEYZ	yaratıcı düşünme	ANADOLU ÜNİ KARIYER KULÜBÜ	2016 MAYIS	4	ESKİŞEHİR	2
PECHA KUCHA	çizim	GESTALT ZONE	2016 EKİM 15	1	ESKİŞEHİR DUBLİN PUB	2
2014 8. ULUSLARARASIPIŞMIŞ TOPRAK SEMPOZYUMU ÇALIŞTAY	toprak		2014	2	ESKİŞEHİR ESKİ ETİ FABRİKASI	2
KAYAKÖY SANAT KAMPI	ahşap oymacılığı	MUTLU EKİZ	2015 TEMMUZ	5	FETHİYE	2
IED TORİNO OTOMOTİV TASARIMI	otomotiv tasarımı	IED TORİNO	2016	1/2	IED TORİNO	2
UX KİŞ KAMPI	UX ve UI tasarımı	USERSPOTS		21	İSTANBUL	2
KARAKTER TASARIM ÇALIŞTAYI	animasyon, müze için karakter tasarlama ve slow motion animasyon	BAŞAR MULUK	2015	1	İSTANBUL MODERN	2

Table C.1: The Questionnaire Data- Workshop List (Cont'd)

ÇALIŞTAYIN ADI	KONU	YÜRÜTÜCÜ	TARİH	SÜRE	YER	KATILIMCI SAYISI
FUSION360	fusion 360 tanıtım	AUTODESK TÜRKİYE	2016 ARALIK	3	İTÜ	2
MERTADAM WORKSHOP	eskiz, dijital eskiz	MERT SEZER	2016	5	İTÜ	2
ANİMAOKUL	animasyon ve sektör	SEZGİN ÖZTÜRK		2	İTÜ	2
ATMA SEVİNDİR	kullanılmayan eşyaların el değiştirerek değerlendirilmesi	İN DESIGN KULÜBÜ	2015 ARALIK 2	2	MMF FOTOĞRAF STÜDYOSU	2
İLAÇ UYGULAMALARINDA YENİ TASARIMLAR	tıbbi gereçlerin insanla olan ilişkilerini arayüzünü düzenleme	İN DESIGN KALİTELİ YAŞAM KULÜBÜ	2016 ŞUBAT 18	2	MMF SAĞLIK BİLİMLERİ FAKÜLTESİ	2
OYUNCAK ÇALIŞTAYI	hurda elektronik parçalardan oyuncak tasarımı	OTT	2014 GĞZ	1	ODTÜ MİMARLIK	2
UTAK 2016 KENDİLİĞİNDEN ÖRGÜTLENEN SİSTEMLERDE ORTAK DENEYİMİN TASARIM SÜRECİNE KATILIMI: İSTANBUL TOPLU TAŞIMA SİSTEMİNDE MİNİBÜS SİSTEMİ ÖRNEK OLAYI		DENİZ EKMEKÇİOĞLU, MELTEM ÖZKARAMAN ŞEN	2016 EYLÜL	1	ODTÜ MİMARLIK	2
LAST NIGHT BEFORE THE JURY	jüri öncesi sürecin değerlendirilmesi	DALSU ÖZGEN, AYKUT COŞKUN	2016 BAHAR	1/2	ODTÜ MİMARLIK	2
BTF'15 LEKE	yerden yüksek, çocuklarla beraber tasarım yaklaşımları	SUNAY PAÇAOĞLU, DUYGU SAYGIN, KARCAN SEZGİN, DENİZ ENGİN	2015 NİSAN 23-26	3	OSMANGAZİ UNİ.	2
PACKAGING WORKSHOP	ambalaj tasarımı		2016 MART	1	THOMAS BATA UNİ	2
3D PRINTING WORKSHOP	3d printing	3DÖRTGEN	2016 ŞUBAT 18	2		2
ETKİLİ SUNUM ÇALIŞTAYI	sunum teknikleri, etkili konuşma		2016 MAYIS	3	ANADOLU KÜLTÜR MERKEZİ	1
LİNOL BASKI ÇALIŞTAYI	linol baskı yapımı	TOSCA ART&DESIGN	2016	1	ANKARA	1
ROBOTİK OYUNCAK	ağşap ile robotik oyuncak	GİLİKA AĞŞAP OYUNCAK ATÖLYESİ	2016	2	ANKARA	1
FOTOĞRAF GELİŞTİRME ATÖLYESİ	temel fotoğrafçılık	KA ATÖLYE	2015 MART	28	ANKARA	1
ÇAÇOY	engelliler için oyuncak tasarımı	ÇAÇOY	2013 MAYIS 8	1	ANKARA BALGAT	1
MAKER FAIR	hayal gücü		2015 KASIM	1	ATÖLYE İSTANBUL	1
İSTANBUL JAM		ATÖLYE İSTANBUL	2017 ŞUBAT	2	ATÖLYE İSTANBUL	1
YEMEK TASARIMI ÇALIŞTAYI			2012	1	AU	1
BEYİN FIRTINASI		HAKAN GENCOL	2012	2	AU	1
AUTODESK DİJİTAL TASARIM ATÖLYESİ	program tanıtım ve öğretimi		2014	2	AU GSF	1
MECHA WORKSHOP	mecha çizim tasarımı	LEVENT BURGAZLI, TARKAN TAŞKIN	2014 MART 15-16	2	AU GSF	1
AUTODESK FUSION 360	fusion 360	FURKAN GÜNAL	2016 ARALIK	1	AU MİMTAS	1
IŞIKLAR TUĞLA ÇALIŞTAYI	tuğla, kullanımı, potansiyeli	IŞIKLAR TUĞLA FİRMAŞI	2016 ŞUBAT 28	1	AU MİMTAS	1
SÜRDÜRÜLEBİLİRLİK ÇALIŞTAYI	sürdürülebilirlik	TOLGA YILMAZ	2016	1	AU MİMTAS	1

Table C.1: The Questionnaire Data- Workshop List (Cont'd)

ÇALIŞTAYIN ADI	KONU	YÜRÜTÜCÜ	TARİH	SÜRE	YER	KATILIMCI SAYISI
TASARIM YÖNBİLGİ ÇALIŞTAYI	brief'e göre kavrama ve çizim	ENGİN KAPKIN	2016	1	AU MİMTAS	1
	matematik ve tasarımla ilgili	FERHAN KIZILTEPE		1	AU MİMTAS	1
RHINOCEROS ÇALIŞTAYI	rhinoceros	MUSTAFA ÖZDOĞAN	2015 OCAK	10	AU MİMTAS	1
ADNAN SERBEST ÇALIŞTAYI	mimarlık ve tasarım öğrencileri işbirliği	ADNAN SERBEST	2014	2	AU MİMTAS	1
GÜRE YAZ OKULU		CENGİZ BEKTAŞ	2014 AĞUSTOS	6	BALIKESİR	1
DEFTER YAPIM ATÖLYESİ	çizim defteri yapımı	bir macar kız	2015 EKİM	1	BATI MACARİSTAN ÜNİ	1
GRAFİK TASARIM ÇALIŞTAYI	program öğrenme amaçlı photoshop		2015	1	BAU	1
3D PRINTER ÇALIŞTAYI	ürün yapımı	MİTAS (okul kulübü)	2016 OCAK	1	BAU	1
AKSESUAR GÖZLÜK TASARIMI	farklı kağıt malzemelerden gözlük tasarlama, fotoğraflayıp reklamını yapma	BAU BERLİN	2016 EKİM	7	BERLİN	1
IN BETWEEN BERLIN	Berlin şehrinde arada kalmışlık		2016 KASIM	7	BERLİN	1
YAVAŞLA VE KEŞFET		ŞEHRİNE SES VER	2015 OCAK	28	BEŞİKTAŞ VE ÜSKÜDAR	1
CAM UYGULAMALARI ÇALIŞTAYI	cam ürün, fırınlama tekniği		2015 NİSAN	1	BEYKOZ CAM FABRİKASI	1
ŞEHİR MERMERİ TASARIMI	bilecik mermeri tasarımla buluşuyor	BEBKA	2015 AĞUSTOS	16	BİLECİK	1
ANKARA DESIGN WEEK-STENCIL ÇALIŞTAYI			2011	4	BİLKENT UNİ	1
BMFI WORKSHOP	transmedia engagement	EGBERT VAN WYNBAAZDEN	2015 EYLÜL	4	BİLKENT ÜNİ.	1
ARZUM EV ALETLERİ	türk kahvesi makineleri için inovatif şeyler	ETMK	2017 OCAK	1	BOMONTİ MİMAR SINAN Ü.	1
BORUSAN CONTEMPORARY ARTS	çağdaş sanat		2014	2	BORUSAN CONTEMPORARY	1
	autocad	FOYA SOFT	2016 TEMMUZ	14	BURSA	1
MEDS'16 CITY OF CONTRASTS		ALE STOICA, MARC LORANT MİHAT	2016	14	BÜKREŞ	1
GRAFİK TASARIM ÇALIŞTAYI					CHANGZHOU TEKNİK YÜKSEKOKULU	1
DEFTER YAPIM ATÖLYESİ	defter yapımı	İSTANBUL COMICS & ART FEST	2016 EYLÜL 24	1	CLUB QUARTIER	1
TETÖP SERAMİK ÇALIŞTAYI	seramik mutfak aletleri	TETÖP	2013 EYLÜL	2	ESKİŞEHİR	1
BTF'17 5N 1MÜDAHALE		OSMANGAZİ ÜNİVERSİTESİ	2017 NİSAN 28-30	3	ESKİŞEHİR	1
MIND THE BUG VOL2	şehir mimarisi ve çarpışma alanları	OBARUHU, SINAN LOGİR	2017 MART 4	2	ESKİŞEHİR	1
KULLANICI ODAKLI DENEYİM TASARIMI	istanbul için tek yaka çalışan deniz ulaşımı	DOĞAN ŞEKERCİOĞLU	2017 OCAK	5	ETAM İSTANBUL	1
ESKİZ ÇALIŞTAYI	çizim	GAZİ ÜNİVERSİTESİ ÖĞRENCİLERİ	2015	1	GAZİ UNİ	1

Table C.1: The Questionnaire Data- Workshop List (Cont'd)

ÇALIŞTAYIN ADI	KONU	YÜRÜTÜCÜ	TARİH	SÜRE	YER	KATILIMCI SAYISI
LOGO TASARIMI		GAZİ TASARIM VE İNOVASYON TOPLULUĞU	2015	1	GAZİ UNI	1
YAPIŞTIRMADAN YARAT	kağıt katlama		2015	1	GAZİ UNI	1
TASARIMDA RENK	renklerin insan üzerine etkisi	GAZİ ÜNİ ÖĞRETİM GÖREVLİSİ	2014	1	GAZİ UNI	1
UMOB 15.5 - İVME		ASLIHAN ÜNLÜ TAVİL	2016 OCAK 24-31	7	GAZİANTEP	1
ARTISTIC GRAPHICS PRINTMAKING WORKSHOP	linol baskı	ACADEMY OF FINE ARTS IN GDENSK	2016	30	GDENSK POLONYA	1
IOT ve KULLANICI DENEYİMİ TASARIMI		USERSPOTS, MİMARLIK VE TASARIM ZİRVESİ	2017 NİSAN	1	HALIÇ KONGRE	1
TEMEL TASARIM ÇALIŞTAYI	temel tasarım		2016	1	HALIÇ KONGRE	1
MASTERCLASS COLLAGE MAKING	kolaj yapımı		2016 MAYIS	30	HOLLANDA	1
AHŞAP İŞLEME ÇALIŞTAYI	ahşap ürün tasarımı ve atölyede işleme		2015 NİSAN	2	İKİTELLİ	1
MOBİLYA TASARIM ÇALIŞTAYI		YILMAZ ZENGER	2015 KIŞ	3	İNEGÖL	1
HAREKETLİ PATTERNLAR	maker	BAŞAKŞEHİR LİVİNG LAB		1	İSTANBUL	1
OPEN DESK ASSEMBLING FURNITURE	ünlü bir open desk tasarımcısının ürün sürecine dahil olma	ATÖLYE İSTANBUL	2016	1	İSTANBUL	1
UMÖB 17		İTÜ ÖĞRENCİLERİ	2016 YAZ	1	İSTANBUL	1
WHATABOUT STUDIO	deneysel ve insana dokunan üretimler yapmak	İTÜ MİMARLIK ÖĞRENCİLERİ	2016 YAZ	1	İSTANBUL	1
3D PRINTING WORKSHOP	3d printing	İTÜ GİNOVA	2016	2	İSTANBUL	1
TETÖP OFİSİ ÇALIŞTAYI	home office mobilyası	TETÖP	2012 ŞUBAT	3	İSTANBUL	1
UMOB'16 BEN,O BİZ		MİMARLIK ÖĞRENCİLERİ	2016 TEMMUZ 11-15	5	İSTANBUL	1
KADIKÖY AMBALAJ TASARIMI	ambalaj	CANDAŞ AYDAR	2015	7	İSTANBUL	1
3D PRİNTER ÇALIŞTAYI	3d printer ile aksesuar tasarımı	İSTANBUL DESIGN FACTORY	2014	1	İSTANBUL BAŞAKŞEHİR	1
KURUMSAL KİMLİK ÇALIŞTAYI	kurumsal kimlik tasarımı	FİRM	2014	1	İSTANBUL BAŞAKŞEHİR	1
3D: HOCKOTHEN	bir oyuncak tasarlayıp 3d üretme	GÜLBAHAR COŞKUN	2016	2	İSTANBUL BAŞAKŞEHİR	1
PAGE 394	defter yapımı	SEVİL SEVİLTOP		1	İSTANBUL GALATA	1
KADIKÖY KOKU HARİTASI		TAK	2016	3	İSTANBUL KADIKÖY	1
KURGUSAL ZAMANLARDA NESNELERİN İZİ	kurgusal tasarım	ELİF KOCABİYİK, DANIELE SOUOSTA	2016 EKİM 21	2	İSTANBUL LÜTFİ KIRDAR	1
TRANSLIGHT GERİ DÖNÜŞÜM ATÖLYESİ	geri dönüşüm	PATRICK ROMPELOTTA	2016 EKİM 19	2	İSTANBUL LÜTFİ KIRDAR	1
ESKİZ ÇALIŞTAYI	gerçekçi çizim teknikleri	MAHİR GÜVEN	2015 HAZİRAN	30	İSTANBUL MAHİR GÜVEN STUDIO	1

Table C.1: The Questionnaire Data- Workshop List (Cont'd)

ÇALIŞTAYIN ADI	KONU	YÜRÜTÜCÜ	TARİH	SÜRE	YER	KATILIMCI SAYISI
ANİMASYONA GİRİŞ	stop motion animasyon			1	İSTANBUL MODERN	1
KWORKS 3D PRINT ÇALIŞTAYI	3d baskı	KOÇ UNİ KULUÇKA MERKEZİ	2017 ŞUBAT	1	İSTANBUL ŞİŞLİ	1
QUSH GOODS WORKSHOP	deri aksesuar tasarımı	QUSET SEH	2016 EKİM 29	1	İSTANBUL-CLOUD NİNE WORKSHOP S	1
AYDINLATMA TASARIMI	taşkişla şenlik'te	OMLET DESIGN	2014 BAHAR	1	İTÜ	1
SENARYO YAZIMI		ALİ VATANSEVER	2013	1	İTÜ	1
SİNEMA ÇALIŞTAYI	taşkişla şenlik'te		2015	1	İTÜ	1
MOBİLİTE ÇALIŞTAYI	gelecekteki mobilite kavramı üzerinden otomobil tasarımı	ENGİN TÜLAY	2015 ARALIK 23	3	İTÜ	1
YARATICI DOKUNUŞLAR	arduino	EKMEL ERTAN, MEHMET ERKÖK	2015 EKİM 11	7	İTÜ	1
TYPE & JOY	typography, modern kaligrafi	GÜLŞAH TAŞKENA		1	İZMİR	1
MODERNISM (YAHŞİBEY WORKSHOP)	modernism	EMRE SENAN TASARIM VAKFI	2015 TEMMUZ	15	İZMİR DİKİLİ	1
PHOTOSHOP CREATIVE THINGS	photoshop render		2016 YAZ	1	İZMİR EKONOMİ ÜNİ	1
ÜRÜN FOTOĞRAFÇILIĞI ÇALIŞTAYI	ürün fotoğrafçılığı	NİLEY İŞLEK	2016 YAZ	1	İZMİR FUJIFİLM SHOWROOM	1
ASKIDA KOZA	tensegrity, biyomimikri	ÖZGÜR KAVURMACIOĞLU	2016 AĞUSTOS	8	İZMİR SEFERİHİSAR	1
SÜRDÜRÜLEBİLİR TASARIM ÇALIŞTAYI		DESIGNERS MEETUP	2016 TEMMUZ	1	İZMİR YÜKSEK TEKNOLOJİ	1
MÜZİK ALETİ YAPIM ATÖLYESİ			2015	1	KADIKÖY	1
QUEER CİNSİYET	kadının toplumsal yerini sorgulayan ürün tasarımı	TAK	2016	1	KADIKÖY	1
FORD PROCESS WORKSHOP	süreç geliştirme		2015	1	KADİR HAS UNİ	1
YAPIKREDİ FİKRİ MOBİL ÇALIŞTAYI	mobil uygulamalarda kullanıcı deneyimi çalıştayı		2016 ŞUBAT 9	1	KOÇ KULUÇKA	1
	oyun tasarımı		2014	1	KRAKOW	1
KWORKS RHINOCEROS ÇALIŞTAYI	rhinoceros program eğitimi	MERT KÜTÜKOĞLU	2016 HAZİRAN 29	1	KWORKS İSTANBUL	1
DESIGN FOR FUTURE	gelecek için yenilikçi tasarımlar	MATT SINCLAIN	2016 GÜZ	1/2	LOUGHBOROUGH DESIGN SCHOOL	1
FASHION DESIGN	fashion	MARGHERITA MAZZA, LAURA GUARNERI	2016 HAZİRAN	10	MİLAN	1
IDEO KULLANICI ODAKLI TASARIM ÇALIŞTAYI	akıllı cihazlar ve arayüz tasarımı ile bütünleşen tasarım	DOĞAN ŞEKERCİOĞLU, İMMİB	2016 MART	1	MİMAR SİNAN GSÜ	1
OTOMOTİV ESKİZ ÇALIŞTAYI		SEDAT ÖZTÜRK	2016 YAZ	1	MİMAR SİNAN ÜNİ.	1
OYUNCAK TASARIMI ÇALIŞTAYI	oyuncak tasarımı	HAKAN DİNİZ	2013 ŞUBAT	1	MSASÜ FİNDİKLİ KAMPÜSÜ	1

Table C.1: The Questionnaire Data- Workshop List (Cont'd)

ÇALIŞTAYIN ADI	KONU	YÜRÜTÜCÜ	TARİH	SÜRE	YER	KATILIMCI SAYISI
KULLANICI ODAKLI TASARIM DENEYİMİ/ DENİZ DOLMUŞU	istanbul için deniz dolmuşu	DOĞAN ŞEKERCİOĞLU, IDEO	2017 OCAK 16	5	MSGSU - ETAM BOMONTİ	1
DTS	disiplinler arası tasarım proje	ODTÜ	2015-16 ARA TATİL	112	ODTÜ	1
YARATICI DÜŞÜNME		HAKAN GÜRSU	2011	1	ODTÜ	1
HUMAN CENTERED DESIGN WORKSHOP	günderlik sađlık pratiklerini geliřtirmek için tasarım çözümleri	ÖZÜMCAN DEMİR ÇİĞDEM DEMİR	2016 NİSAN	1	ODTÜ MİMARLIK	1
IDEO KULLANICI ODAKLI TASARIM		DOĞAN ŞEKERCİOĞLU	2016 ŞUBAT 29	1	ODTÜ MİMARLIK	1
OYUN ÇALIŞTAYI	oyuncak	HAKAN DİNİZ	2013	1	ODTÜ MİMARLIK	1
OYUNCAK ÇALIŞTAYI	oyun ve oyuncak tasarımı	HAKAN DİNİZ	2016	1	ODTÜ MİMARLIK	1
TASARIM VE ESKİZ ÇALIŞTAYI	eskiz	SELİM SOYSAL	2014	1	ODTÜ MİMARLIK	1
UTAK 2016 KENDİLİĞİNDEN ÖRGÜTLENEN SİSTEMLERDE ORTAK DENEYİMİN TASARIM SÜRECİNE KATILIMI: İSTANBUL TOPLU TAŞIMA SİSTEMİNDE MİNİBÜS SİSTEMİ ÖRNEK OLAYI		MELTEM ŞEN ÖZKARAMAN, DENİZ EKMEKÇİOĞLU	2016 EYLÜL	1	ODTÜ MİMARLIK	1
PIC BASIC PRO DERSLERİ	pic basic pro	OTT	2012 KASIM	2	ODTÜ MİMARLIK	1
OYUN TASARIM ÇALIŞTAYI	oyun tasarımı	ATOM	2015	2	ODTÜ TEKNOKENT	1
BTF'14 BEYAZ BALON ÇALIŞTAYI		ARMAĞAN DALOĞLU	2014 MAYIS	2	OSMANGAZİ UNİ.	1
BTF'16 GÖÇE YAZMAK		SERENAY ŞAHİN	2016 MAYIS 6-8	4	OSMANGAZİ UNİ.	1
BACK TO BASIC WORKSHOP	Enzo Mari'nin koltuđunu yeniden yorumlama ve hayata geçirme	DENİZ ÜNER	2016 OCAK	6	PÜRİSTANBUL ŞİŞHANE	1
BAU-FSH SALZBURG KIŞ SPORU ÇALIŞTAYI	kış sporu tasarım	ELÇİN TEZEL, SİNAN DOLU	2013	7	SALZBURG FSH	1
BETONUN ÜRÜNLEŞMESİ ÇALIŞTAYI	kalıplama ile beton çimento	ÖZLEM SERDAR	2016	1	TAK KADIKÖY	1
3D PRINTER ÇALIŞTAYI	3d baskı kullanma ve Kadıköy temsili tasarımı		2016 AĞUSTOS	2	TAK KADIKÖY	1
ADOBE ILLUSTRATOR ÇALIŞTAYI	program içeriđi ve kullanımı	ONUR ATAY	2016	2	TAK KADIKÖY	1
İŞARET DİLİ EĐİTİMİ		TAK	2014 AĞUSTOS		TAK KADIKÖY	1
AHŞAP ATÖLYESİ	küçük şeyler	USLU YÖNEY	2016 MAYIS 6	4	USLU YÖNEN ATÖLYE	1
İNGOĞRAFİK TASARIM		MERVE AKDAĞ ÖNER	2013 EKİM	28		1
FUSION 360 VE INVENTOR ÇALIŞTAYI	program tanıtımı	ABDULLAH TOGAY	2014	1		1

APPENDIX D

SELECTION OF INTERVIEWEES

	A	B	C	D	E	F	G	H	I	J
1	Anadolu Üniversitesi	Çalıştay Sayısı	Bahçeşehir Üniversitesi	Çalıştay Sayısı	Gazi Üniversitesi	Çalıştay sayısı	İTÜ	Çalıştay sayısı	ODTÜ	Çalıştay Sayısı
2	a4_01	7	b3_01	7	g4_01	11	i4_01	7	m4_02	12
3	a4_02	7	b4_01	5	g4_02	8	i4_02	6	m4_01	8
4	a4_03	7	b4_02	5	g3_01	6	i4_03	6	m3_03	6
5	a4_04	7	b3_02	4	g4_03	5	i3_01	4	m4_03	6
6	a4_05	7	b3_03	4	g4_04	5	i4_04	4	m3_01	5
7	a4_06	6	b3_04	4	g4_05	5	i4_05	4	m3_02	5
8	a4_07	6	b4_03	4	g4_08	5	i4_06	4	m4_04	4
9	a4_08	6	b3_05	3	g3_02	4	i3_02	3	m4_05	4
10	a4_09	6	b3_06	3	g3_03	4	i3_03	3	m4_06	4
11	a4_10	6	b3_07	3	g3_04	4	i4_07	3	m3_04	3
12	a4_11	6	b4_05	3	g3_05	4	i4_08	3	m4_07	3
13	a4_12	6	b4_06	3	g3_06	4	i4_09	3	m4_08	3
14	a4_13	6	b4_07	3	g4_06	4	i4_10	3	m4_09	3
15	a3_01	5	b4_08	3	g4_07	4	i3_04	2	m3_05	2
16	a3_02	5	b3_08	2	g4_09	4	i3_05	2	m4_10	2
17	a3_03	5	b3_09	2	g3_07	3	i4_11	2	m4_11**	2
18	a4_14	5	b3_10	2	g3_08	3	i4_12	2	m4_12	2
19	a4_15	5	b3_11	2	g3_09	3	i4_13	2	m3_06	1
20	a4_16	5	b3_12	2	g4_10	3	i4_14	2	m3_07	1
21	a4_17	5	b4_04	2	g4_11	3	i4_15	2	m3_08	1
22	a4_18	5	b4_09	2	g4_12	3	i3_06	1	m3_09	1
23	a4_19	5	b4_10	2	g4_13	3	i3_07	1	m3_10	1
24	a3_04	4	b4_11	2	g4_14	3	i3_08	1	m3_11	1
25	a3_05	4	b4_12	2	g4_15	3	i3_09	1	m4_13	1
26	a3_06	4	b4_13	2	g4_16	3	i3_10	1	m4_14	1
27	a3_08	4	b4_14	2	g3_10	2	i3_11	1	m4_15	1
28	a3_09	4	b4_15	2	g3_11	2	i3_12	1	m4_16	1
29	a4_20	4	b4_16	2	g3_12	2	i3_13	1	m4_17	1
30	a4_21	4	b4_17	2	g3_13	2	i3_14	1	m4_18	1
31	a4_22	4	b3_13	1	g4_17	2	i3_15	1	m4_19	1
32	a4_23	4	b3_14	1	g4_18	2	i4_16	1	m4_20	1
33	a4_24	4	b3_15	1	g3_14	1	i4_17	1	m4_21	1
34	a4_25	4	b3_16	1	g3_15	1	i4_18	1	m4_22	1
35	a4_33	4	b3_17	1	g3_16	1	i4_19	1	m4_23	1

Figure D.1 Selection of Interviews

APPENDIX E

CONSENT FORM (TURKISH)

KATILIMCI İZİN FORMU

Değerli Katılımcı,

Adım Zeliha Didem Yanpar. ODTÜ Endüstri Ürünleri Tasarımı Bölümü'nde yüksek lisans öğrencisi ve araştırma görevlisiyim. Bu araştırma; Yrd. Doç. Dr. Pınar Kaygan'ın danışmanlığında yürütülen ve öğrencilerin ders dışı bir etkinlik olarak düzenlenen çalıştaylara bakış açısını araştıran tez çalışmamın bir parçasıdır.

Araştırma kapsamında katılımcılarla görüşmeler gerçekleştirilecek ve ders dışı bir etkinlik olarak düzenlenen çalıştaylara katılımları ve bununla ilgili görüşleri alınacaktır. Görüşmeler yaklaşık 20 dakika sürecek olup, yüz yüze ya da Skype üzerinden katılımcılar için uygun olan bir zamanda gerçekleştirilecektir. Bu görüşmelere katılarak sunacağınız katkı, bu araştırma için çok önemli bir yere sahiptir.

- Bu çalışmaya katılım tamamen gönüllülük esasına dayanmaktadır. Bu çalışmada elde edilecek veriler araştırma amacı ile bu tez çalışması kapsamında, konferans sunumlarında, akademik makale ve sunumlarda kullanılacak olup kişisel bilgileriniz gizli tutulacaktır.
- Görüşmeler sırasında, veri kaybı olmaması için ses kaydı alınacak olup bu kayıtlar yalnızca araştırmacı Z. Didem Yanpar tarafından dinlenecektir. Ses kayıtları analiz edilerek anonim olarak kullanılacaktır.
- Görüşmeler sonrasında araştırma ile ilgili sorularınız araştırmacı tarafından yanıtlanacaktır.
- Araştırma süresince herhangi bir şikâyetiniz olursa, bu çalışmanın danışmanı olan

Yard. Doç. Dr. Pınar Kaygan ile 'pkaygan@metu.edu.tr' e-posta adresi üzerinden iletişime geçebilirsiniz.

- Bu formu okuyup onaylamanız, çalışmaya gönüllü olarak katılmayı kabul ettiğiniz anlamına gelmektedir. Ancak, görüşme sırasında sorulardan ya da herhangi başka bir nedenden ötürü kendinizi rahatsız hissederseniz görüşmeyi yarıda bırakıp çıkmakta serbestsiniz. Böyle bir durumda araştırmacıya çalışmadan çıkmak istediğinizi söylemek yeterli olacaktır ve kaydedilen veriler silinecektir.

Yukarıdaki bilgileri okudum ve bu çalışmaya tamamen gönüllü olarak katılıyorum.

(Formu doldurup imzaladıktan sonra uygulayıcıya geri veriniz).

Ad Soyad

Tarih

İmza

---/---/---

APPENDIX F

INTERVIEW GUIDE (TURKISH)

Görüşme Soruları

1. Şimdiye kadar hangi çalıştaylara katıldınız? Ne gibi şeyler yapıldı o çalıştaylarda?
(Ankette katılmış olduklarını belirttikleri çalıştaylar hatırlatılabilir.)
2. Çalıştaylara katılmakla ilgili beklentileriniz nelerdir?
Hangi amaçlarla çalıştaylara katılıyorsunuz?
Neye göre seçiyorsunuz? İlginizi çeken ne oluyor? Neden çalıştaylara katılıyorsunuz?
3. Katıldığınız çalıştaylarla **ilgili bilgiye nereden ulaştınız?**
(Bu çalıştaylardan nasıl haberiniz oldu?)
4. Katıldığınız çalıştaylara bireysel mi bir arkadaş grubuyla toplu olarak mı katılıyorsunuz?
5. Katıldığınız çalıştayların olumlu bulduğunuz yanları nelerdir? (Düzenlenmiş olduğu ortam, yürütücüsü, konusu, katılımcıları...)
Çalıştaylar size ne katıyor?
6. Katıldığınız çalıştayların olumsuz bulduğunuz yanları var mı? Var ise nelerdir?
Çalıştaylar ile ilgili geliştirilebilecek, farklılaştırılabilir şeyler var mı sizce?

(Hep olumlu şeylerden konuştuk, olumsuz olarak bahsetmek istediğiniz bir şeyler var mı?)

7. Katıldığınız çalıştaylarda ne gibi deneyimleriniz oldu?
Bu deneyimlerin sizi nasıl etkilediğini düşünüyorsunuz?
Çalıştaylardan **özellikle hatırladığınız, aklınızda kalan bir şeyler** oldu mu?
8. Çalıştaylarla ilgili kazanımlarınız nelerdir?
Katıldığınız çalıştayların sizin üzerinizde ne gibi bir etkisi oldu?
Çalıştaylara dair kazanımlarınızı nasıl/hangi alanda kullanıyorsunuz/
kullanabileceğinizi düşünüyorsunuz?
Öğrencilik hayatınızı düşündüğünüzde çalıştayların size ne gibi bir etkisi oluyor?
(Yakında) mezun olacaksınız, sizce **çalıştaylara katılımınızın ne gibi bir etkisi olur?**
9. Belirli **konu başlıklarında** düzenlenmesini isteyeceğiniz çalıştaylar var mı?
Neden?
10. Çalıştayların daha etkili düzenlenebilmesi için nasıl özellikleri olması gerektiğini düşünüyorsunuz?
Ya da siz bir çalıştay düzenlemek isterseniz, nasıl bir çalıştay olurdu?
(Hangi konu ile ilgili olurdu? Ne gibi özellikleri olmasını isterdiniz? Neden?)

APPENDIX G

TRANSCRIBING THE INTERVIEW DATA

Kayıt tarihi: 28.04.2017

Görüşmeci: A2 / Anadolu Üniversitesi
Katıldığı çalıştay sayısı: 7
Süre: 40:40

I: Daha önce bir anket çalışması yapmak için gelmiştim hatırlıyorsun. Bu araştırmada da öğrencilerin ders dışı bir etkinlik olarak çalıştaylara bakış açılarına bakıyorum ben. Burada da senin gerçekten çok ilgili, aktif bir katılımcı olduğumu gördüm. O yüzden de seninle bir görüşme yapmak istedim. Çok teşekkür ederim yardımcı olduğun için. Şeyi soracağım öncelikle sana bu katıldığın çalıştaylara nasıl karar veriyorsun? Neye göre seçiyorsun?

A2: Mmm... şöyle mesela isimlere göre karar veriyorum, tasarımcının isimlerine göre. Başarılı olmalarına göre yani biraz. Bir de mesela geçen yıl, ondan önceki yıllarda arkadaşlarım katıldıysa onlar da bana haber verebiliyor, "bu güzel geçti, buna katıl, verimli geçti bunda olsun iyi olur" gibi. Hani öyle karar verdim çoğuna. Arkadaşlarımla da haberleşerek/... yani biraz da şöyle oluyordu: mmm birbirimize söylüyorduk hani bu iyi bir isim, o zaman buna da katılalım. Yada işte mesela Bademlik'e şöyle olmuştum: benim haberim yoktu, arkadaşım haber verdi mesela. Yine hep beraber gidince daha toplu hareket ediliyor, öyle de daha çok katılımm oldu açıkçası. Arkadaşlarımla da karar verdik.

I: anladım. Tasarımcı ismi dedin... onu biraz daha açabilir misin?

A2: açabilirim. Mmm mesela ambalaj tasarımında Gamze Güven'i biz düşünmüştük. O zaman tasarım kulübünde çalışıyordum aynı zamanda. Düşünmüştük ve demiştik ki hani sonuçta alanında en iyi isimlerden biri, bizimle çalıştay yapsa çok güzel gözükecek. Hem bizim CV'mizde de çok iyi gözükecek, hem çalışınca da iyi olacak. Tanışacağız. Belki staj yapabileceğiz diye düşündüğümüz için haberleşmiştik. Mail atmıştık. Öyle mesela biz çağırdık isteyerek, çalıştayı biz hazırladık mesela.

I: anladım. Tanınmış birinin olmasını önemsediniz.

A2: hı evet.

I: peki şey dedin/... bu çalıştaylara dair bilgiyi nereden alıyorsun?

0:02:28 A2: çalıştaylara dair bilgiyi... mmm şey...

I: nereden öğreniyorsun yani? Arkadaşlarımdan öğreniyorum dedin onun dışında...

A2: işte Tasarım Kulübünde çalışıyordum. Hani orada beraber karar veriyorduk. Bir de ondan önceki Tasarım kulübü çalışmalarında da/... yani 1. Sınıftayken kulüpte değildim henüz. Ama onlar çalıştayları hazırlıyorlardı. Önce okulla öğrenmeye başladım. Hani bizden önceki dönemler 'katılın, çok iyi oluyor hani bir şeyler öğreniyorsunuz. Hem CV'nize yazıyorsunuz.' demişlerdi. Ondan sonra daha çok katılmaya başladım. Yani ODTÜ'ye de mesela hocamız söylemişti: 'katılın burada hani olmanız iyi olur. Sizin öğrendiğiniz şeylerle alakalı demişti mesela Salt İşlev çalıştay'. Ondan dolayı mesela ona da hemen başvurmuştuk yani.

Figure G.1 Transcribing the Interview Data

APPENDIX H

THE FIRST ROUND OF CODING

ana bu konuda çok ürün üretmemiştik. İşte çok fazla deneyimimiz yoktu. Ama deneyim kazandıktan sonra ben sıkılmaya başladım. Zaten ben bunları biliyorum. Yani mesela bir daha oyun oyuncak çalıştayına gitmem. Çünkü zaten biliyorum neler olduğunu, neler yapabileceğimizi de biliyorum. Ya da diğer farklı disiplin olursa şayet ona gitmeye daha çok hevesli oluyorum.

I: neden peki?

A: İşte o konuda çok mesela bilgim ya da deneyimim olmuyor. Ama çoğu deneyimler kazandıktan sonra zaten bunları ben biliyorum gitmeme gerek yok/... eğer gideceksem de çok ünlü birisi olursa eğer, hani eğer onu çok iyi biliyorsam ona gitmek isterim.

I: Ünlü birisi olmasını neden önemsiyorsun?0:08:18

A: mmim. Yani belki işte o tanışma belki olabilir. Belki ya da en azından aynı ortamda bulunup hani bu tasarım süreci nasıl yaşıyor gibi/... Ya da tanışıyorum. Normalde hani bir ofisine gidip, 'merhaba' deyip, hani tanışamazsınız ama bir çalıştayda işte tanışabiliyorsunuz, kendinizi tanıtılabiliyorsunuz gibi. Bu anlamda belki staj yapmak istiyorsam mesela onunla yüz yüze görüşme imkanım oluyor. Öbür türlü çok zor ulaşıyorum. O yüzden çalıştaylarda belki kendini gösterme imkanı da sağlıyor aslında.

I: anladım. Bir bağlantı/

A: Evet, bağlantı sağlıyor. O anlamda iyi oluyor. Ya da yani bir bağlantı olmasa hani bir staj gibi bir amacın olmasa bile en azından işte ben onunla şöyle şöyle çalışmıştım. Böyle böyle şeyler yaptım gibi şeyler de olabiliyor yani.

I: anladım onları bir yerde kullanıyor musun mesela? Şu insanla şöyle şöyle bir şey yaptım diye...

A: Yani CV'ye yazmıştım. Çok önemli olanları yazmıştım yani. Eğer bir iş çıkardıysam, gerçekten iyi bir işse, çalıştay bana verimli olduysa onu yazıyorum. Ama eğer çok bir verim alamadıysam, ya da işte çok önemli değilse onları yazmıyorum.

I: anladım mesela ünlü birisinin olması yazmanı sağlıyor mu mesela?

A: yani aslında değişiyor. Yani bazı mesela yani bu Arçelik tabi firma olarak ünlü, bunu yazmıştım. Mesela Gamze Güven'i de mesela yazdım ama işte dediğim gibi, bilmiyorum. O an artık hani artık bunu yazsam çok mu gereksiz olur falan diye düşündüğüm de oluyor.

1.-6. sınıf farkı

ÇALIŞTAY SEÇİMİ farklı disiplin

NETWORK

deneyim

CV PORTFOLIO

CV PORTFOLIO seçenek kayıyor.

Figure H.1 An Example of the First Round of Coding

APPENDIX I

THE SECOND ROUND OF CODING

	A	B	C	D	E
1	PROFESSIONAL BENEFITS OF DESIGN WORKSHOPS	GETTING PREPARED FOR PROFESSIONAL LIFE	EXPANDING KNOWLEDGE AND SKILLS	A1: yani farklı disiplinlerde bir şeyler öğrendiğim, en azından mesela ambalaj konusunda da bir şeyler çalıştım. En azından sıfır bir bilgi yok gibi. İşte birçok farklı konuda bir şeyler öğrenmek/... aslında verimli olabileceğini düşünüyorum. Mesela sadece B3: mesela bu fikri modelde kullanıcı deneyimi tasarımı, UX design adı altında bir başlık var. Aslında bunun benim ilgimi çektiğini farkettim. O günden sonra aslında UX design nedir, UX designcılar ne yapar, UX designa nasıl başlanır bunun gibi şeyler	B3: İmmmm... İmm profesyonel hayatta day... Mesela ilk 3D printer'a gitmişim, çünkü onlarda da deneme baskıları, prototip alma konusunda çok kullanılıyor. Hatta Kunter Hoca falan da bana tavsiye ediyordu. Yani sık kullanılabileceğimi düşünüyorum. Ya yine
2			TAKING CAREER DECISIONS	A4: Yani bilmiyorum. Benim için mesela önemli olabilirdi çünkü o kişinin hani ders dışında kendini beslemek istediğini öğrenirdi mesela baktığımda. Hani /... başka kişilerle ekipçe bir şey yapmışsa bir ürün ortaya	B2: şöyle hani... benim için önemli olduğu ne alana yönelmek istediğime faydası olabilir diye düşünüyorum ben onları hani. Çünkü şu an bilmiyoruz nerde, nasıl iş/... çok farklı alanlardan biz çıkıyoruz hani. Ben bazen şaşıyorum 'burada da mı endüstriyel
3			TEAMWORK	A1: Yani CV'ye yazmıştım. Çok önemli olanları yazmıştım yani. Eğer bir iş çıkardıysam, gerçekten iyi bir işse, çalıştay bana verimli olduysa onu yazıyorum. Ama eğer çok bir verim alamadıysam, ya da işte B4: şu anda bile mesela CV'mizde kullanıyoruz	B1: şöyle/... Bunların hepsi bir grup projesiydi aslında. Şu aşıptan yaptığım şey hariç... Grup projesi de hani hem grup çalışmasını öğreniyoruz. Hem de tek başına olup bir ürün geliştirmek zaten bizim okulda
4		CONTRIBUTION TO CV-PORTFOLIO	DECIDING TO ADD CV/PORTFOLIO	A1: Yani CV'ye yazmıştım. Çok önemli olanları yazmıştım yani. Eğer bir iş çıkardıysam, gerçekten iyi bir işse, çalıştay bana verimli olduysa onu yazıyorum. Ama eğer çok bir verim alamadıysam, ya da işte B4: şu anda bile mesela CV'mizde kullanıyoruz	I: anladım. O önemlileri neye göre seçiyorsun peki? Bu katıldığın çalıştaylar arasında hangileri önemli oluyor senin için? Neye göre önem sırası?0:10:28
5		EXPECTATIONS FROM ADDING CV/PORTFOLIO	A1: yani çıkardığım ürüne göre de olabiliyor şimdi mesela birinci sıradaki Fusion360	aslında. Gittiğimiz çalıştayları. Bunun etkisi olabilir hani. Başvurduğunuz firma için bu önemli olabilir. daha önceden /... çünkü spesifik bir şeye gidiyorsunuz atölyeye gidiyorsunuz. Bu sizin aşıba ilgili olduğunu	A1: mesela birinci panelde mesela: yani çalıştay programın işleyişi, işte nasıl modelleme
6		NETWORKING WITH FACILITATORS	A2: İmmmm... yani benim işte çalıştığım benim olabilir. Belki ya da en azından aynı ortamda bulunup hani bu tasarım süreci nasıl yaşıyor gibi/... Ya da tanışıyorum. Normalde hani bir ofisine gidip, 'merhaba' deyip, hani	A2: İmmmm... yani benim işte çalıştığım benim olabilir. Belki ya da en azından aynı ortamda bulunup hani bu tasarım süreci nasıl yaşıyor gibi/... Ya da tanışıyorum. Normalde hani bir ofisine gidip, 'merhaba' deyip, hani	A2: İmmmm... yani benim işte çalıştığım benim olabilir. Belki ya da en azından aynı ortamda bulunup hani bu tasarım süreci nasıl yaşıyor gibi/... Ya da tanışıyorum. Normalde hani bir ofisine gidip, 'merhaba' deyip, hani
7		NETWORKING WITH PEERS	yan yana çok gelemeyeceğim insanlarla bir araya geldim. Hem şey olsun hem moderatör olsun, hem de farklı bölümlerden insanlar olsun. Çünkü hani herkes kendi/... mesela şöyle ki bizim Eskişehir'de mesela ENTAS,	tanıdım hakikaten. Yani endüstriyel tasarımcı öğrencilerle hani, sadece okuldaki arkadaşlarımla ben biliyordum ama orada da gerçekten hani iyi kazanımlar elde ettim insani anlamda. Mmm... ve kendi okulumun	

Figure I.1 An example of Second Round of Coding in Microsoft Excel

