

**DESIGN THINKING IN BUSINESS EDUCATION:
A CASE STUDY PERSPECTIVE**



GÖZDE ÇEVİKER ÇINAR

JUNE 2018

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A CASE STUDY PERSPECTIVE**

A THESIS SUBMITTED TO
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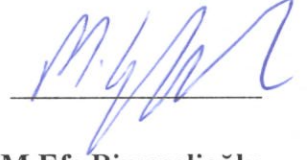
BY

GÖZDE ÇEVİKER ÇINAR

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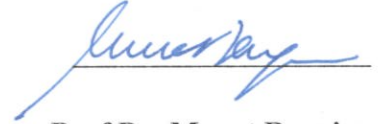
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Approval of the Graduate School of Social Sciences



Assoc.Prof.Dr. M.Efe Biresseliolu
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Art.



Prof.Dr. Murat Bengisu
Head of Department

This is to certify that we have read this thesis and that in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Art.



Asst.Prof.Dr. Gökhan Mura
Supervisor

Examining Committee Members

(Title and Name in alphabetical order of last name)

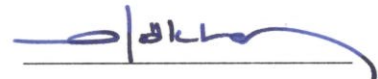
Asst. Prof. Nilgün Gürkaynak



Assoc.Prof.Dr. Melike Demirbağ Kaplan



Asst.Prof.Dr. Gökhan Mura



ABSTRACT

DESIGN THINKING IN BUSINESS EDUCATION: A CASE STUDY PERSPECTIVE

Çeviker Çınar, Gözde

Design Studies Master Program, Graduate School of Social Sciences

Supervisor: Asst. Prof. Dr. Gökhan MURA

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Along with the developments of creativity techniques in the 1950s, the concept of design thinking began to take its place in the literature. In the 1960s and 1970s, the many books describing methods and theories in different areas of design continued to mention design thinking as a term as well. One of the milestones in this historical development process is known to be the book, “Design Thinking”, published by Peter Rowe in 1987. In addition to its applications in the disciplines such as engineering and architecture, in the 21st century, the design thinking approach has become an increasingly important focus of attention in the business world. Many firms found it appropriate to take advantage of a design thinking approach to creating a design-focused work environment that would support their development and awareness, particularly in the innovations they needed. The CEO of IDEO, a world-renowned design firm, has emphasized the vital importance of the design thinking approach in today's business world and, as such, has paved the way for the business world. This human-centered approach, while offering different perspectives on innovative problem-solving methods, soon became integrated into the field of education and training, as well. First, at Stanford University, commonly known as d.school, the design thinking approach integrated into the education system. Stanford was followed by many other prominent universities, which adapted the design thinking approach to their cultures of education.

The primary aim of this thesis is to explore the different integration methods to formulate an appropriate model for integrating design thinking into business education in (under)graduate level in Turkey. This detailed examination is also expected to help develop a roadmap within the framework of design thinking principles in order to meet the world standards of business education at the graduate level in Turkey. For this purpose, firstly, with a detailed literature review, different perspectives on the design thinking approach are examined. Later, the position of design thinking approach in business education has been reviewed and the question whether design thinking could be a solution for problems in global business education or not has been discussed extensively. In case study analyses, different methodologies in the process of integrating design thinking into education and the education system in the world's most successful business schools are examined. These methodologies were also compared with selected universities in Turkey. Detailed studies have shown that Turkey's baby steps are still not sufficient to claim a significant development in the integration process. Also, further research is needed to determine a road map in order to approach the world-standard business education at graduate level in Turkey, from the perspective of design thinking at short notice.

Keywords: Design Thinking, Business Education, MBA, Pedagogy, Curriculum Development.

ÖZET

İŞLETME EĞİTİMİNDE TASARIM ODAKLI DÜŞÜNME: VAKA ÇALIŞMASI PERSPEKTİFİ

Çeviker Çınar, Gözde

Tasarım Çalışmaları Yüksek Lisans Programı, Sosyal Bilimler Enstitüsü

Tez Yöneticisi: Dr. Öğretim Üyesi Gökhan MURA

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1950’li yıllar ile birlikte yaratıcılık tekniklerinin gelişimi paralelinde, tasarım odaklı düşünme (Design Thinking) kavramı da literatürdeki yerine almaya başlamıştır. 1960 ve 1970’li yıllarda ise, tasarımın farklı alanlarındaki metod ve teorileri anlatan kitapların yaygınlaşmasının beraberinde, tasarım odaklı düşünme yaklaşımından terim olarak bahsedilmeye devam edilmiştir. Bu tarihsel gelişim sürecindeki kilometre taşlarından biri ise, 1987 yılında Peter Rowe tarafından yayınlanan ve adı salt olarak Tasarım Odaklı Düşünme olan kitap olarak bilinmektedir. Mühendislik, mimarlık vb. disiplinlerdeki uygulamalarının yanı sıra, 21. yüzyıla geldiğimizde tasarım odaklı düşünme yaklaşımı iş dünyası için de önemi artan bir ilgi merkezi haline gelmiştir. Firmalar, özellikle ihtiyaç duydukları inovasyonlarla ilgili gelişimleri ve farkındalığı destekleyecek dizayn-odaklı bir iş ortamı yaratılması konusunda tasarım odaklı düşünme yaklaşımından faydalanmayı uygun görmüştür. Dünyaca ünlü bir tasarım firması olan IDEO’nun CEO’su, tasarım odaklı düşünme yaklaşımının günümüz iş dünyası için hayati önemini vurgulayarak, iş dünyasına bu anlamda bir vizyoner olarak yön vermiştir. İnsanı merkezine alan ve inovatif problem çözme metodları konusunda farklı bakış açıları sunan bu yaklaşım, kısa zaman sonra eğitim ve öğretim alanına da entegre olmayı başarmıştır. İlk olarak, Stanford Üniversitesi’nde, yaygın olarak bilinen adıyla d.school’da, eğitim sistemine entegre edilen tasarım odaklı düşünme yaklaşımı, daha sonra dünyanın farklı yerlerindeki başarılı birçok üniversitenin kültürüne farklı metodlar yoluyla adapte edilmiştir. Tam da bu

noktada bu tezin amacı, dünyadan ve Türkiye’den örnek okulları detaylı inceleyerek, farklı entegrasyon metodolojilerini ortaya çıkarmak ve bu yolla Türkiye’deki yüksek lisans düzeyindeki işletme eğitiminin dünya standartlarına ulaşması kapsamında tasarım odaklı düşünme prensipleri çerçevesinde bir yol haritası oluşturmaktır. Bu amaçla öncelikle, detaylı bir literatür taraması ile birlikte, tasarım odaklı düşünme yaklaşımına farklı bakış açıları incelenmiştir. Sonrasında, tasarım odaklı düşünme yaklaşımının işletme eğitiminde yeri ve işletme eğitimin sorunlarına bir çözüm olup olamayacağı da tartışılmıştır. Vaka çalışması analizi kapsamında ise, dünyanın en başarılı işletme okullarında tasarım odaklı düşünme yaklaşımının eğitim ve öğretim sistemine entegrasyonu sürecindeki farklı metodolojiler incelenerek; Türkiye’deki mevcut örneklerle karşılaştırılmıştır. Detaylı incelemeler göstermiştir ki, Türkiye entegrasyon sürecindeki yolun henüz çok başındadır. Türkiye’deki işletme eğitiminin tasarım odaklı düşünme perspektifinden dünya standartlarını yakalayabilmesi için ileri çalışmalar yapılarak; detaylı bir yol haritası belirlenmesine ihtiyaç duyulmaktadır.

Anahtar Kelimeler: Tasarım Odaklı Düşünme, İşletme Eğitimi, İşletme Yüksek Lisans Programı, Eğitim Bilimi, İzence Geliştirmesi.



To My Great Family

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CHAPTER 1: INTRODUCTION

Since Rowe used the term “Design Thinking” approach as the title of his book in 1987, it became an aspect of the common awareness of design researchers accordingly (Rowe, 1987; Dorst, 2012). In its general meaning, design thinking refers to creative strategies which designers are utilizing along the process of designing (Visser, 2006). Despite the fact that outline is constantly impacted by singular inclinations, the plan thinking strategy shares a typical arrangement of qualities, primarily: creativity, collaboration, empathy, curiosity and optimism (Faste, 1994).

As a solution-centered reasoning methodology, design thinking is viewed as a strategy for useful, innovative determination of issues. Differently from analytical thinking, design thinking incorporates "developing" thoughts, with few, or no, limits on broadness amid a "brainstorming" stage (Robson, 2002). Configuration believing is particularly helpful while tending to wicked problems, that are ill-defined or tricky. With ill-defined issues, both the issue and the arrangement are obscure at the start of the critical thinking exercise (Rittel and Webber, 1973).

In the last decade, the term has also gained its popularity while dealing with the problems innovatively among the fields of Information Technology (IT), Business and Education most notably. It has been evolved as a methodology to resolve arguments apart from professional design practice, especially in terms of business and social frameworks (Brown, 2008; Dorst, 2012). Design thinking was adapted for business purposes firstly by David M. Kelley, who founded the design consultancy firm IDEO in 1991 (Brown, 2009). Next, Richard Buchanan's 1992 article "Wicked Problems in Design Thinking" communicated a more extensive perspective of design thinking by tending to recalcitrant human worries through design (Buchanan, 1992).

As a human-centered approach, the process of design thinking includes five different phases, according to d.school, which are: empathize, define, ideate,

prototype, and test (See Figure 1). The first phase deals directly with the users. The question in this initial step arises as “How do I approach the challenge?”. In the definition phase, it is crucial to mention the needs, problems and the insights clearly in order to find an answer to how the findings could be interpreted. The third phase is constructed to ideate challenging assumptions, as well as to produce ideas for innovative resolutions. In the prototype step of the process, solutions are arrived at to generate the idea. Finally, the fifth and last phase offers solutions by testing, as well as testing to prove and improve the idea.

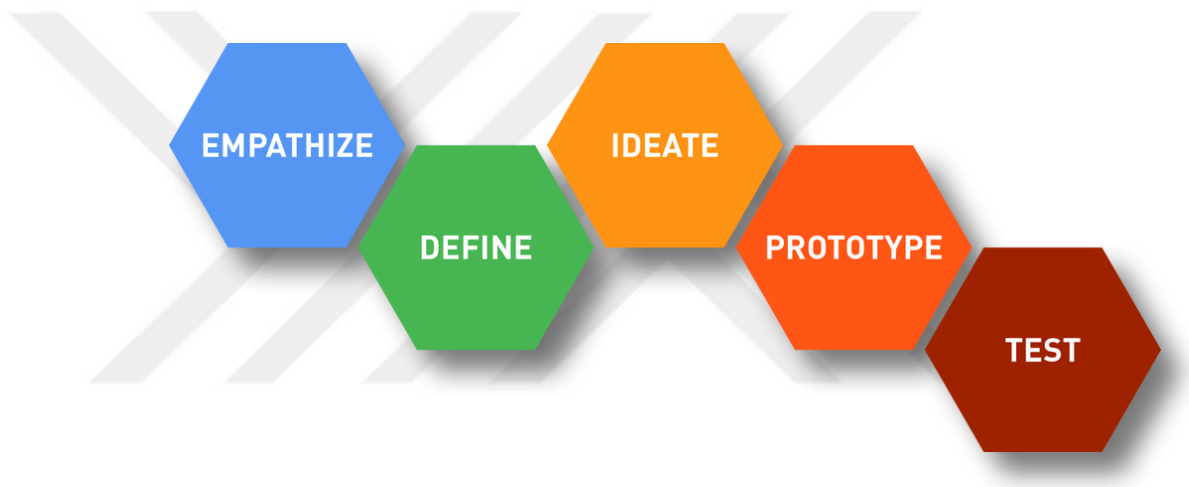


Figure 1. Five Phases of Design Thinking

The focal point of this study is the integration process of design thinking approach into business education. Hence, the main purpose of this thesis is to examine how the design thinking methodologies have been integrated in order to improve and develop business education, both at global level and nationally in Turkey. Therefore, this study aims to make a versatile contribution to the existing literature with an extensive case study analysis which let us analyze the world’s most successful business schools comparatively. Some continuous cases have also been analyzed from the perspective of Turkish universities.

Accordingly, this study aims to answer the following research questions:

- i) What are the main problems related to the current business education?
- ii) How and why the design thinking approach has become favorable in business education during the last decades?
- iii) Which business schools have integrated design thinking methodologies into their business education at a global level?
- iv) What are the main motives of the business schools' integrating design thinking approach?
- v) What are the different tools/methodologies for the integration of design thinking approach?
- vi) Have business schools/universities in Turkey integrated design thinking into their education system, and if yes, how?

This thesis is divided into four parts. The first part is Chapter 2. In this chapter, a detailed literature survey was employed to understand different discourses related to design thinking. The objective here is to explain the different approaches of design thinking, while also discussing the needs of education in the 21st century.

In Chapter 3, the second part of the thesis, the concept of design thinking in education has been analyzed. The purpose is to identify and discuss the primary needs of education in the 21st century. To do so, problems in business education have also been discussed intensively, and design thinking approach is considered as a possible solution for today's educational perspective.

Chapter 4 and Chapter 5 comprise the third part of the thesis. Chapter 4 explains the research and methodology of the thesis. Adapting a case study method, Chapter 5 exemplifies seven case studies of the most successful business schools in the world, adapted from Financial Times Ranking. At the same time, this chapter focuses on three case studies of business schools located in Turkey to provide a glimpse into the Turkish approach to the integration of design thinking.

The fourth part consists of Chapter 6 and Chapter 7. Chapter 6 discusses the main results and findings of the thesis after having compared a total of ten case studies in order to propose a road map for Turkish business schools. Chapter 7 describes the limitations of the thesis and it also highlights further research opportunities.



CHAPTER 2: LITERATURE REVIEW

Being effective in the present exceedingly innovative and all-around focused world requires humans to create and utilize an alternate arrangement of abilities and skills than were required some time before (Shute and Becker, 2010). One of these skills is called “design thinking”. The concept of design thinking has gotten expanding consideration amid late years – especially from directors around the globe. Management journals and books have secured stories about the energy of configuration considering and recommending that design thinking can give huge incentive to management and innovation.

Along with the changes in design discipline of the 21st century, similar developments have also taken place in the area of business and management, where production and distribution are prime focal points in these sectors, but later they have left the place and continuously interacted (Stewart, 2011). Consumption has become a focal point, bringing consumerism, its desires, its interaction with the product and its experience to the forefront. Therefore, the disciplines of business and design come together in the consumer-human axis. Companies have taken innovation to the forefront in order to increase the competitiveness of the market, and the designer has become a strategic force responsible for the innovation process (Brown, 2008). As a result, companies have met with design thinking approach. The idea of design thinking has also spread by encouraging various companies and communities that have gained popularity with the hard work of the IDEO design firm (USA) (Lafley et al., 2013) and nowadays consider the design thinking approach.

The beginnings of the design thinking worldview took place in the mid-sixties (Simon, 1969), when businesses set out to discover what designing is and how it could be put into action. The timetable connects design thinking to the examination of the designers' reasoning procedures and consistently specifies Simon (1969) and Schön (1983) as cornerstone works with ideas; for example, “the concept of design thinking began to formulate after Schön published the

Reflective Practitioner in 1983”. The term, then, was coined by Peter Rowe in his book, *Design Thinking* (Rowe, 1987). Composed of two vogue words, the concept originally implies “approaching managerial problems as designers’ approach design problems” (Dunne and Martin, 2006). Later, the increasing reputation of the concept coincided with several trends in the discussions of management for innovation underlining notions like “open innovation” (Chesbrough, 2003), and “user-driven innovation” (von Hippel, 1988).

In scholarly writing, many writers have expounded on the idea of distinctive procedures fundamental in the design thinking process (e.g., Liu, 1996; Owen-Jackson, 2002; Stempfle and Badke-Schaube, 2002). In the essence, design thinking excerpts to how designers see and how they consequently think (Liu, 1996). As one of the most prominent trends worldwide, design thinking generally refers to a systematic approach to generate new ideas and solve problems that can be applied to many markets and businesses of life, not just to specific areas such as service, production, finance, procurement, in-house operations, human resources, or marketing. This approach is also a scientific methodology that allows people to develop their business-oriented designs by integrating the needs of the people and the possibilities of technology necessary for innovation. Also, it is a framework that supports new ideas, excitement, and creativity for better-designed solutions. Tim Brown, CEO of IDEO – a global design and innovation company – introduces design thinking in his book as “the collaborative process by which the designer’s sensibilities and methods are employed to match people’s needs with what is technically feasible and a viable business strategy. In short, design thinking converts need into demand” (Brown, 2009).

Three focal points of design-minded thinking are people, technology and businesses. Design thinking is not problem-oriented, but solution-oriented and utilizes logic, life-force, intuition and systematic reasoning to deliver end-user value. It aims to integrate the needs of people with what is feasible and economically applicable in terms of technology. In an interview, Columbia University Professor Don Buckley, who gave lectures on innovation and design-

oriented thinking, stated "Innovation is design-driven thinking", linking innovation to design-minded thinking (Öndeş, 2015).

In order to fully comprehend what design thinking is, the term ought to be defined accurately: how it is talked about and seen by various creators, what it means and what the motivations were that started this brilliant concept. There are two separate discourses inside the design thinking phenomenon: one is design-centered and the other is business and management-centered. Therefore, since they occur in different parts of the literature review relevant to their specific features, they will be dealt with separately, as design discourse and business and management discourse (Johansson and Woodilla, 2011; Hassi and Laakso, 2011).

Looking through the literature on design thinking, it is again noticeable that there are two different discourses in the field. The trending literature identifies these two distinctive discourses based on two observations: one of them has a history of roughly 50 years, and the other, is a more recent one (Hassi and Laakso, 2011). The first one, studied by Badke-Schaub, Roozenburg and Cardoso (2010), classifies the concept as 'traditional design thinking approach' and 'new design thinking movement'; while the other division has been explicitly identified as 'design discourse' and 'management discourse' by Johansson and Woodilla (2011).

Johansson and Woodilla (2011) give an accommodating review of the field of design studies by explaining how the idea of design thinking was generated. They express it as a designed method for knowing (Cross, 1982), or how designer's think (Lawson, 1980). They portray how the establishments of the idea detailed inside the discourse through fundamental works, for example, Simon (1969), Lawson (1980), Schön (1983), Rowe (1987), and Cross (1982; 2001).

Johansson and Woodilla (2011) depict the development of the design thinking debate from the design discourse to the management setting as started and sustained by articles and books composed by principles from design consultancy companies, for example, IDEO (Brown, 2008, 2009; Kelley, 2001). These

writings generally illustrate the working styles of designers with a proposition of their value in different settings outside the center of design disciplines.

The conviction that design thinking came from IDEO was promoted, without exception, by the perspectives of the professional experts with statements such as: “The roots of design thinking ultimately are in IDEO and their notion of user-centered design” (Hassi and Laakso, 2011). The d.school of Hasso Plattner Institute of Design at Stanford University was also associated clearly with both IDEO and the delivery of the concept of design thinking. Likewise, the delegates of the design discourse recognized the role of IDEO, and particularly Tim Brown its CEO, at the beginning of the current managerial discourse.

The literature review includes a debate on design thinking from the 1960s when it initially started to show up as a point of discussion and studies. Yet it is critical to take note that Rowe utilized the term design thinking without precedent for his 1980s book *Design Thinking*. Most of the literature is from the past decade, since the design thinking approach was introduced in the 2000s. From the beginning of the 2000s, the key figures in the design thinking discussion are design researcher Cross and IDEO’s CEO Tim Brown (Hanttu, 2013).

Johansson-Sköldberg et al. (2013) also agreed that there are two different discourses in design thinking. One is design thinking which is linked to the academic field in the professional practice of the designer. This concept has been debated for about 40 years and consists of five sub-discourses (Johansson-Sköldberg et al., 2013):

- Thinking about the creation of works as design and designer (Simon, 1969)
- Design as a reflexive practice and thinking as a designer (Schön, 1983)
- Designing as a problem-solving activity and thinking as a designer (Buchanan, 1992)

- Design and thinking as a designer as a way of making sense / reasoning (Lawson, 2006; Cross, 2006, 2011)
- Thinking as a design and designer as the creation of meanings (Krippendorff, 2006)

According to Simon, design is about creating something new and it is not interested in what already exists (Simon, 1996). The focus of design discipline, which is a reflexive practice according to Schön, is the communication between reflection and creation (Schön, 1992). Buchanan's design describes a problem-solving activity consisting of problem identification and problem-solving steps that deal with unresolved, difficult and variable problems (Buchanon, 1992). In addition, Cross (2011) is interested in the designing activity of designers, Lawson (2006) and in investigating the psychology of the creative designing process to present a model of this process. According to Krippendorff (2006), the focal point of the design process is to make sense (Johansson-Sköldberg et al., 2013).

As a result, from the academic perspective, the relationship between the design process, the steps of solving the design problem or the activity, the designer's work methods, the design / designer and creativity, the work or product created by the designer are all emphasized. The academic context has been built on a theoretical background and has continued to evolve on the basis of the previous approach or approaches.

From the business perspective, the concept of design thinking has evolved over the last decade, and this concept consists of three subdivisions (Johansson-Sköldberg et al., 2013). These are:

- Design thinking as IDEO's design and innovation work (Kelley, 2001, 2005; Brown, 2008, 2009)
- Design thinking as an approach to organizational problems and managerial skills (Dunne and Martin, 2006; Martin, 2009)

- As a part of business theory, design thinking (Boland and Collopy, 2004a)

According to the model of IDEO company, design thinking is a process which involves certain stages (Brown, 2008). According to Brown, anyone who follows these steps can deal with design (Lafley et al., 2013). Dunne and Martin (2006), for example, encourage the use of design thinking approach to business students (Johansson-Sköldberg et al., 2013). According to Roger Martin, design thinking is an efficient mix of analytical thinking and intuitive thinking. He calls it a productive mixture, because he thinks that there is a need for two ways of thinking to reflect the past and to form the future for what it receives (Euchner, 2012). Boland and Collopy (2004b), find the general features of design and management to be similar and focus specifically on the cognitive properties of the design rather than the work process.

Thus, while Dunne and Martin saw design thinking as part of business education and Boland and Collapy as part of the business theory, Kelley and Brown describe this discourse as the process of solving the user-centered design problem. From the perspective of the business, it is seen that the weight is given to the business discipline and marketing activities. Hence, the design, the designing activity, the creativity in the academic discourse, and the link between the created work and the creator are not seen here. For this reason, design is seen as a process of solving problems by following certain steps. The problems faced by enterprises or managers, and the ideas produced are expressed independently by various approaches to design thinking.

As a result, from a business perspective, design thinking is a way to create innovation, while designers are only one way to solve it (Hassi and Laakso, 2011). The design thinking approach to designers is not a new approach since it has existed for 40 years. It is quite new, though, to see that the concept of design thinking in the field of business has developed in the last decade and is defined as a method of creating innovation and solving business or management problems.

For this reason, design thinking differs from the viewpoint of the business perspective and the perspective of the design.

There is no clarity as to the principles design thinking is based on, or how to define it (Kimbell, 2011), because it is perceived differently by businesses and designers. This, therefore, creates a complexity of concepts, and it appears that there are differences in definitions or methods related to design thinking. For example, Thoring and Mueller (2011a) define design thinking as human-focused problem solving used to find innovative solutions by working within multidisciplinary teams. Brown (2008) states that by using their sensitivity and methods to meet the needs of people, designers think of a viable strategy that can transform their idea into a market opportunity. In other words, Brown refers to Thoring and Mueller's design thinking as an interdisciplinary and human-focused method of problem solving, while Brown refers to it as a discipline that is marketing and business-oriented and uses the designer's methods.

Also, when we look at the literature, we see that different design thinking methods are applied. Brown's (2008) application consists of three stages: Inspiration (researching the problem or opportunity), Ideation (finding possible solutions, developing and testing), and Implementation (marketing it after finding the appropriate solution). The Hasso Platner Institute of Design (d.school) at Stanford University, on the other hand, practices a five-phase process Empathize, Define, Ideate, Prototype, Test. A rotating method has been implemented here and design has been positioned at the center of technology, business and human values. Even in the last stage, though, it can be relocated to the beginning or the preceding stage (Thoring and Muller, 2011b). Hence, while Brown attempted to summarize the stages of design thinking in three steps, d.school found it appropriate to follow a more detailed path.

Looking at these two methods and other similar approaches, it can be observed that there are similarities such as problem identification, research, finding solutions, prototyping, testing, and endpoint evaluation (Bequett and Bequett,

2012). Therefore, although the methods of design thinking are similar to each other in content, it appears that there are differences in terms of the application when described in stages.

There is no common opinion on how design thinking can best be defined and what its methods are, as there are two different perspectives on design thinking and some of the discourses in the business perspective (Brown, 2008). The differences in the definitions and in the methods applied also appear in trainings that focus on the design thinking discourse.

Different approaches on design thinking have been examined throughout the whole chapter, mainly from the two perspectives of business and design. However, in order to serve the primary purpose of this thesis, it is also necessary to identify the importance of design thinking in education. Accordingly, the next chapter will discuss the educational point of view on design thinking in detail.

CHAPTER 3: THE RELATIONSHIP BETWEEN DESIGN THINKING AND EDUCATION

3.1. Design Thinking in Higher Education

Design thinking will quite likely bring about a significant effect on 21st century education. An important reason for this is that it involves creative thinking to resolve issues. In academic situations, extensive research is crucial to think and reason coherently, and take care of complex issues (Rotherham and Willingham, 2009). Hence, to enable students to succeed in this interconnected, digital world we live in, instructors should bolster students in creating and sharpening 21st century aptitudes (e.g., design thinking, teamwork abilities) that improve their problem-solving skills and pave the way for their success at school and in their professional lives. (Rotherham and Willingham, 2009; Shute and Torres, 2012). These abilities are reliable with the hypothetical conventions of situated cognition (Lave and Wenger, 1991), developmental theories (Piaget, 1972), and constructivism (Bruner, 1990). Design thinking is an imaginative procedure that empowers scholars to address students' needs and that raises inventive and creative individuals. It emerges as a contemporary pedagogical approach which can be utilized from kindergarten to higher education (Scheer, Noweski, and Meinel, 2012). Starting with early-childhood learning, thinking like a designer can bring out different kinds of abilities and competences in different fields of knowledge towards a life-time learning cycle (Buchanan, 1992).

Design practice has changed today. In addition to product design, designers now begin to design experiences, societies and systems (Stewart, 2011). For this reason, designers are expected to solve complex design problems at both local and global levels in interdisciplinary and collaborative work environment. And, as such, they need to be experts in many subjects. The design discipline has thus become multidisciplinary and the designer has begun to play a mediating and facilitating role among other disciplines (Trummer and Lleras, 2012). This has led design to collaborate with other disciplines.

In higher education, business and engineering have been incorporated into design training and joint design programs and other disciplines (industrial design engineering) have been established. This has led to an increase in design and engineering programs and integrated undergraduate programs (e.g. design engineering), and it has also brought about variations in the design and operation of post-graduate education in design (Trummer and Lleras, 2012). Some interdisciplinary programs that incorporate design into their curriculum are the Rensselaer Polytechnic Institute (RPI), a BS degree program in Design, Innovation and Society; Özyeğin University, the Design, Technology and Society Graduate Program; and Gazi University, the Industrial Design Engineering Program. The multidisciplinary approach has emerged as a focal point in design education. In addition, there have been fundamental changes in educational institutions. Aalto University was established as the first interdisciplinary university in Finland by merging the Helsinki School of Economics, Helsinki University of Technology and The University of Art and Design, Helsinki (Restarting Britain Report, 2011). Thus, the interdisciplinary approaches in design education are brought to existence by an unprecedented understanding of institutions that create new programs with renewed curriculums.

When we look at design education worldwide, we can see that many countries have renewed their policies regarding the design education of the future. In many instances, the focus is on interdisciplinary higher education. In Denmark, for example, in order to give multidisciplinary perspectives to design students, it has been suggested that the collaboration between design education and other disciplines (mainly business education, but also humanities and social sciences, also natural and applied sciences) be enhanced (The Vision of the Danish Design 2020 Committee, 2011). In Singapore, the education policy for universities has been to incorporate design into the teaching and learning activities of other disciplines (e.g. engineering and business schools) by moving towards a more holistic, multidisciplinary design education (Design Singapore Initiative, 2003). As can be seen with these examples, collaborative work between many different disciplines, many of which were previously not considered, and design education

is being encouraged. The reason for involving these other disciplines in the training programs is because design, which is regarded as a basic discipline, plays an interdisciplinary binding role.

Today, many higher educational institutions offer programs that consist of a combination of business and design education, with a focus on the word “design thinking”. Some notable examples are undergraduate programs, distance learning courses and module or course-based MOOCs (Massive Open Online Courses) applications. These programs provide cooperative learning and working environments for people from different universities, disciplines or companies, and the training is provided by trainers from the education, design and business departments (Wrigley and Straker, 2015). Programs giving a degree by several higher educational institutions and programs giving modules or course-based training will be exemplified in the following chapters as case studies in details.

When we look at the content, education given in business schools differs from education given in design schools. Students in design schools are trained to create a range of possible solutions with innovative thinking, while students in business schools are trained to take the problem apart and look for the source of the main problem. In other words, business students ask, “why is it broken?”, while design students ask, “how can we fix it?” (Alexis and Hassan, 2007). As can be seen, while business schools concentrate on finding the problem in order to find the solution, design schools tend to focus more on solutions, and even act on a holistic point of view to identify what the problems are. The creativity, skills and knowledge expected in the design thinking of the academic field are absent from the design thinking discourse in which the business perspective is expressed (Johansson-Sköldberg et al., 2013). Therefore, the two disciplines and two design thinking approaches have both different points of view and different focuses.

Furthermore, according to Fleischmann (2013), design thinking tends to be so popular in the field of higher education, because it is independent of all disciplines and is therefore a collaborative work that can be practiced by all (Fleischmann,

2013). However, it is believed that these interdisciplinary programs do not adequately provide the full content of design education. Some of the programs are business education centred, and design education is used as a problem-solving tool composed of certain stages to bring about a solution to existing problems. In such a case, there is the impression that design can be done by everyone by following certain paths. Hence, this interdisciplinary education is thought to be practicable by everyone as long as they do cooperative work. This leads to the delusion that anyone who follows the steps of the design thinking method may be dealing with design. As a result, despite the concept of design thinking in the context of given education, there are design and problem-solving methods. The two disciplines are thoroughly different, and the misconceptions about the applicability of the design discipline may lead to doubts about how the design education is transferred to the other side.

According to Chamberlain and Vogel (2012), such interdisciplinary programs meet the needs of business executives who do not have much time. In other words, they only create design awareness, but they do not go deep into it. Therefore, design education taught with 4-year programs and the studio education which briefly explains the basics of design education are quite different (Chamberlain and Vogel, 2012). Teixeira (2010) also often thinks that such programs at the graduate level are inadequate. The main problem with these programs is that they do not respond to market-oriented economies that require curriculum to be confined to traditional disciplinary boundaries and knowledge of design and business (Teixeira, 2010).

Some higher education programs show design education and business education to be similar. It seems that there is no special curriculum or a common language for a combination of these two disciplines. For this reason, Rachel Cooper and Sabine Junginger from Lancaster University and Thomas Lockwood, the Chair of Design Management Institute needed to develop a common language and understanding to teach students in business and design education how to understand and improve design (Sobel and Groeger, 2012). Hence, although the

understanding of design education in the business school and design school may be different from each other, the two disciplines may complement each other if an accurate synthesis can be made. For this reason, this interdisciplinary education should consider design thinking as a term with a context, instead of as a rhetoric with an enterprise perspective.

As for the present, non-design graduates could be given preparation training, similar to those in the program offered at the Illinois Institute of Technology, involving a basic knowledge of design, with a prospect of obtaining detailed information as well. In addition, studio education can play a major role in the creation of licensed design hybrids (design and operation) if the master's program for non-designers is studied at the centre of the studio (Chamberlain and Vogel, 2012). By establishing a collaborative, hands-on, interactive learning environment for a wide range of courses with a studio-like structure, such as in the SCALE-UP (Student-Centred Active Learning Environment for Undergraduate Programs) project, promotion and implementation of studio education in engineering and science areas will be equivalent to business and design education including design thinking approach. Therefore, it is important that the students from different disciplines work in teams, taking into consideration their history in studio education and pedagogy.

Also, as seen in the training programs, studio education is given in the virtual environment in distance education institutions. In such a case, there may be some negative points in terms of education. In the traditional studio environment, the virtual studio is independent of time and space in terms of individuality, centennial communication and interaction. The benefits of virtual studio training can be appealing, especially for design thinking training given to working scholars or professionals. Therefore, it is thought that blended design studio and similar approaches, in which both technology and traditional methods are used together, will be more beneficial in the interdisciplinary education that will be created by making use of training in design education (Öztürk, 2016).

According to Teixeira (2010), for liberal arts students, such an interdisciplinary education should be given at the undergraduate level, instead of being given at the graduate level along a limited time. In other words, the curriculum should be devoted to liberal arts education, where 40% comprises design competencies, 40% marketing, management and finance, and the remaining 20% humanities and environmental studies (Teixeira, 2010). In this case, it is important to give instruction in both the design and management discipline, along with the human-centred liberal arts education, which is in the centre of the two disciplines. The reason is that through the education of liberal arts, the individual is taken to the focal point and thus gains many learning experiences, ultimately discovering themselves. This contributes to developing research and communication skills, using technology, collaborating with different groups, developing critical thinking and problem-solving skills, learning what is possible in the past and future, and finally applying all of this to real life practices (Janeksela, 2012). As can be seen, the skills gained by liberal arts education are also in line with the intended skills to be gained in design education, and the interdisciplinary training to be provided accordingly.

Programs consisting of a combination of business and design education have the characteristics of the two different discourses; and with these two perspectives complement each other (Peinado and Klose, 2011). It is therefore necessary to have a common language that combines these two perspectives in the interdisciplinary education. In other words, an understanding of education with the designer's thinking methods and skills, pedagogy of design education and field knowledge of design and combining these with concepts in the discipline of business is crucial to finding creative and innovative solutions to the problems in the field of business. For this reason, the ways in which design is taught to non-designers should be investigated carefully, and studio education and basic design education should not be ignored at this point.

Regardless of its developing significance in business life, many supporting structures in the commercial centre miss the mark concerning keeping pace with

this new design thinking approach, and education is clearly one of them (Çeviker-Çınar et al., 2017). Disciplines need a perspective outside their own field to reach new knowledge and solutions and seek ways to work collaboratively outside their borders (Poggenpohl, 2009). In line with this understanding, an interdisciplinary approach to education is expected in the 21st century. This will have an impact on the structure of educational institutions as well (Öztürk, 2016). One of the areas affected by this change is business education.

3.2. Problems in Business Education: Design Thinking as a Solution

Along with the importance of the interdisciplinary approach in education mentioned in the previous sub-section, this thesis aims to improve and develop business education, especially by integrating design thinking approach into it. For this reason, firstly, the problems and crisis in today's business education will be analysed throughout this sub-section. Secondly, the opportunities design thinking could bring will be explored to meet the needs as a solution against 21st century's challenges and shifts. The successful showcases will also be investigated in terms of how design thinking approach is being integrated into the curricula of business schools throughout the following sub-section.

In their seminal work, Porter and McKibbin (1988) proposed six essential insights for an ideal MBA curriculum on which the below-mentioned studies focused:

1. Multidisciplinary integration (e.g. Ducoffe et al., 2006);
2. Experiential learning (e.g. Kolb, Boyatzis and Mainemelis, 2001);
3. Soft-skill development (e.g. Andrews and Highson, 2008);
4. Adapting a global perspective (e.g. Lorange, 2003);
5. Building awareness, knowledge, and adaptability for information technologies (e.g. Leidner and Jarvenpaa, 1995);

6. Business ethics and social corporate responsibility (e.g. Nicholson and DeMoss, 2009).

Far from a perfect situation today, the failure of business education and business schools is manifested in most of the fields mentioned above, though the most prominent problems are observed in the first three areas: (1) multidisciplinary integration, (2) experiential learning, and (3) soft-skill development (Çeviker-Çınar et al., 2017).

First, from the perspective of multidisciplinary integration, Newell and Green (1982) defines the interdisciplinary courses as those which “critically draw upon two or more disciplines and lead to an integration of disciplinary insights” (Newell and Green, 1982). Along with the business education approach, in the study conducted by Steinberg (1997), while having many different, sometimes conflicting meanings, an effective multidisciplinary curriculum is expected to have six main features: academic and technical rigor, authenticity, applied learning, active exploration, adult connections and assessment practices. These features are at the same time expected to serve the goals of increasing active learning, developing educational and career planning skills, as well as reaching a diverse population (Steinberg, 1997).

In their paper Hoover and Whitehead (1975), expressed the definition of experiential learning thus: “Experiential learning exists when a personally responsible participant cognitively, affectively, and behaviourally processes knowledge, skills, and/or attitudes in a learning situation characterized by a high level of active involvement”, emphasizing the importance of participative-, interactive- and applied-ness (Hoover and Whitehead, 1975). Since, according to Carter et al. (1986), “business education involves studying applications of mathematics, economics and behavioural sciences”, this applied nature of business education is one of the most appropriate disciplines for the use of experiential learning approaches (Carter et al., 1986; Gentry, 1990). However, combining these two concepts, the literature still suggests that the MBA curricula

of top-ranked business schools lack emphasis on required multidisciplinary integration and experiential components (Schatz, 1997; Markulis et al., 2005; Bennis and O'Toole, 2005; McCarthy and McCarthy, 2006; Navarro, 2008; Athavale et al., 2008).

Finally, business schools are also criticized because their graduates are not sufficiently prepared and trained with the so-called soft business-related skills, also known as interpersonal competences. There is no common definition of soft skills as it differs from concept to concept, as well as from discipline to discipline. The literature has a wide range of definitions in both the business and management areas. (Clark, 1993; Rainsbury et al., 2002; Wellington, 2005; Andrews and Higson, 2008; Schulz, 2008; Weber et al., 2009). In one of the studies conducted by Weber et al. (2009), soft skills are defined as the “interpersonal, human, people or behavioural skills needed to apply technical skills and knowledge in the workplace” (Weber et al., 2009). In another study, the top ten important soft skills in today's work place have been identified as: integrity, communication, courtesy, responsibility, social skills, positive attitude, professionalism, flexibility, teamwork, and work ethics (Robles, 2012). Emphasizing the soft skills in the professional business world, business schools and faculties have also been under pressure to develop these skills in their graduates and future managers. In recent decades, debates and criticisms still continue that business schools are not paying much attention to the so-called soft skills beyond academic and technical knowledge (Linder and Smith, 1992; Grimbly, 1993; Schulz, 2008; Riley et al., 2008; Walesh, 2004; Dvorak, 2007).

Within this context, design thinking may offer an innovative approach to business schools and faculties in order to train the future business managers and leaders. The integration of the design thinking perspective into the business education curricula may help academicians develop pedagogies by combining analytic reasoning with an iterative and exploratory process (Glen et al., 2014). In recent decades, significant attempts to apply the design thinking approach to address the deficiencies in business school education can be seen worldwide. They are not

adequate, however, because they are slow and in a limited manner (Çeviker-Çınar et al., 2017). Accordingly, this thesis utilizes case studies of successful business schools that take advantage of the design thinking approach in their curricula ivy using varying methods of integration: entirely or partially. Therefore, the next chapter deals in detail with the research and methodology design in order to fully comprehend how these business schools integrate the design thinking approach into their business education area.



CHAPTER 4: RESEARCH AND METHODOLOGY

The main aim of this thesis is to understand and reveal how the globally leading business schools integrate the design thinking approach. Therefore, the research first utilizes a case study analysis of whether design thinking methodology has been adapted in their pedagogical approaches of the business schools worldwide. For the schools that encourage and apply the design thinking approach, a deeper, further research is employed to discuss different types of integration related to design thinking. The next step includes the comparison of successful cases among the universities in Turkey in the next chapter.

As a common tool of qualitative research methods, there are multiple definitions and understandings of case study. According to Crowe et al. (2011), the approach is principally beneficial to use when “there is a need to obtain an in-depth appreciation of an issue, event or phenomenon of interest, in its natural real-life context” (Crowe et al., 2011). According to Bromley (1990), it is a “systematic inquiry into an event or a set of related events which aims to describe and explain the phenomenon of interest” (Bromley, 1990). Moreover, Researcher Robert K. Yin defines the case study research method “as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used” (Yin, 1984). Yin distinguishes the subsequent steps while using a case study research:

1. Plan
2. Design
3. Prepare (and share your preparation)
4. Collect (sometimes going back to Design when collecting data)
5. Analyze
6. Share

Case study method as explained above is selected as the most appropriate tool for analyzing the patterns of design thinking in business education while analysing the successful show cases from the world, and by resolving on a policy analysis for Turkey.

In order to understand the practices of the design thinking concept, the list of the business schools from Financial Times Global MBA Ranking 2018 has been examined in detail ¹. It is observed that, among the top 60 business schools, only 6 have not integrated the design thinking approach into their program. Since the ratio is high enough, the remaining universities have not been included in the research. Among those 6 business schools, in some of them design thinking approach has been discussed but integration has been decided against; while in some other design thinking has been contended but not yet integrated. It is continued at the research phase.

The different methodologies and approaches for integrating design thinking into business schools in these universities has been determined as follows:

- Design thinking is one of the focal points of business education.
- Design thinking courses are offered at undergraduate/graduate level as either elective or must courses.
- Workshops and/or boot camps related to design thinking are organized both for students and academicians.
- There are independent creative labs/areas compatible with the design thinking philosophy.
- There are student clubs and/or initiatives dealing with the design thinking approach.

¹ For the ranking of all business schools globally, please see Appendix A.1.

- Academicians and/or researchers focusing on the design thinking theme are employed.
- Joint programs with the Design Faculty are carried out to increase the awareness of the design thinking concept.

A total of seven business schools from the ranking making use of all these different methodologies of integration of the design thinking approach have been selected as successful showcases and analyzed thoroughly. The first five business schools in the ranking, namely Stanford Graduate School of Business (1st Rank), INSEAD (2nd Rank), The Wharton School: University of Pennsylvania (3rd Rank), Harvard Business School (5th Rank), and The University of Chicago - Booth School of Business (6th Rank) has been examined in detail. Although the London Business Schools (LBS) has ranked as the 4th business school, since there is not much evidence on design thinking-related studies, the school has not been included in the case study analysis. Also, two more institutions from the first sixty business schools, Yale School of Management (15th Rank) and Imperial College Business School (51st Rank) took part in the analysis subsequently, in terms of their pioneering efforts on benefitting from the design thinking approach.

The next step includes a detailed analysis of the business schools from Turkish universities. Since there is no national rating for business schools at graduate level, the analysis has been done among the OSYM university rankings in terms of the base points of the Department of Business (undergraduate level) retrieved from 2017-2018 university entrance exam². The first 20 universities in the ranking have been included in the analysis. The key point is that if there are two or more different options belonging to the same university (such as different levels of scholarships), then the repeated university has been surpassed and so the selection is continued with the next-ranked different university as well. At the end, it has been conferred that the universities, namely Koç University, Boğaziçi University,

² For a detailed list of universities in terms of base points and success ratings, please see: https://dokuman.osym.gov.tr/pdfdokuman/2017/OSYS/YER/Tablo-4_12082017.pdf.

Bilkent University, Galatasaray University, and TOBB University have the first five places in the ranking. A detailed examination also showed that the design thinking approach was not integrated in three of them, namely Bilkent University, Galatasaray University, and TOBB University; while there is an evidence of integration in the remaining two universities, namely Koç University and Boğaziçi University. In the 6th ranked one, Özyeğin University, there are not an intensive effort on design thinking integration. So, Middle East Technical University (METU) at the 7th rank has been analyzed in detail since there is a different methodology of design thinking integration, called Design Factory, which is seen as a unique tool similar to the d.school approach. At the end, those three universities - Koç University, Boğaziçi University and METU - have been analyzed in terms of their different methodologies for integrating the design thinking approach.

On the other hand, it is essential to point out that although OSYM rank had been created according to the undergraduate level of business education, all the cases have been searched both in terms of graduate and undergraduate level business education. The main difference between the worldwide cases and Turkey arises from the fact that business education itself is primarily a graduate level education in the world. However, in Turkey it still maintains its importance as an undergraduate department.

In all the case studies, the necessary information has been gathered from websites, journals, magazines, videos, columns, and related journal articles by using a keyword combination of “design thinking” and “the name of the university/business school”. The criteria in the case study research mainly centres upon finding out the different methods of integration of the design thinking approach into selected business schools. From this point forth, the following two chapters will analyse all the case studies of business schools from both Turkey and the world, aiming at drawing a road map for Turkey while also mentioning policy proposals.

CHAPTER 5: AN EVALUATION OF BUSINESS SCHOOLS: CASE STUDY ANALYSIS

5.1. Case Studies from the World

5.1.1. Stanford Graduate School of Business (1st Rank)

As one of the globally influential education institutes, at Stanford Graduate School of Business (GSB), design thinking is seen at the intersection of all those specific areas as an innovative methodology dealing with the real-world business challenges and opportunities (Stanford University, 2018).

At Stanford University, the design thinking movement has originated and raised from the d.school which is also known as the Hasso Plattner Institute of Design. Being an effective role model in terms of design thinking integration to higher education, the school has also experienced a growth trend during the last three years. Since they believe in the capacity of creativity of everyone potentially, d.school mainly aimed at helping people develop their creative skills and capabilities. The work of this independent school focuses on radical collaboration, real-world projects, unbounded problems and 100% opt-in culture. Additionally, d.school targeted to make creative thinking possible with eight core abilities: ambiguity navigation, learning from others, information synthesis, rapid experiment, movement between concrete and abstract, building and crafting intentionally, deliberative communication, and designing your design work (Hasso Plattner Institute of Design, 2018).

The methodology of the d.school differs from other universities, since design thinking philosophy and tools are available to all students from various disciplines at Stanford University. The project-based and experiential classes bring together students from all seven schools at Stanford no matter what their degrees are: bachelor's, master's, or doctoral. The must courses boost classes with credit; and pop-out experiences without credit are offered to the students in order to gain a comprehensive experience in design practice as well (Please see Table 1).

Table 1. Courses provided in d.school

1	Beyond Pink and Blue: Gender in Tech
2	Civic Dream, Human, Spaces
3	Collaborating with the Future
4	Creative Gym: A Design Thinking Skills Studio
5	Creativity and Innovation
6	Design Across Borders
7	Design for Child Health Equity: Redesigning Healthcare Delivery
8	Design for Healthy Behaviours
9	Designing Equitable Education Ecosystems
10	Launchpad
11	From Play to Innovation
12	Intro to Legal Design
13	Portfolios are for Everyone
14	The Design of Data
15	Reflective Design Practice
16	Visual Design Fundamentals
17	Coaching Design Thinking
18	Abstract to Concrete: A Design Abilities Studio
19	Community Led System Design
20	D.Media
21	D.Leadership: Design Leadership in Context
22	Design for Extreme Affordability
23	Feed Lab: Food System Design & Innovation
24	Movie Design
25	Spaceplay
26	The Designer in Society
27	Design for A Habitable Planet
28	Negotiation by Design: Applied Design Thinking for Negotiators
29	Feed the Change: Redesigning Food Systems
30	Design for Health: Helping Patients Navigate the System

Along with these courses, Stanford GSB and the d.school also enhances students' vision with free webinars, executive bootcamps, workshops and certificate programs. Design Thinking Bootcamp: From Insights to Innovation, The Innovative Health Care Leader: From Design Thinking to Personal Leadership, Managing Teams for Innovation and Success, Customer-Focused Innovation, Leading Change and Organizational Renewal, The Corporate Entrepreneur:

Driving Innovation and New Ventures are some examples of the so-called programs aimed at developing design thinking skills at the intersection of various disciplines.

Although the d.school offers an independent master's program, Design Impact, in its MBA program, there are also 6 design thinking courses, as well as 15 executive education courses. Among them, the entrepreneurial community at Stanford GSB allows the MBA students to learn the applications of the concepts of design thinking, engineering, finance, and business organizational skills within an intensive hands-on, project-based course, namely Startup Garage. For instance, Lean Startup and Design Thinking: Getting the Best Out of Both was a successful conversational organization as part of the GSB's Startup Garage.

In short, Stanford University is the one of the most successful cases globally in integrating the design thinking approach, both methodologically and also content-wise, by putting innovation at the heart of its education process. As further evidence of Stanford's success in this area, it would be appropriate to mention that design thinking is viewed as one of the central topics, together with marketing and accounting, in both the d.school and a in Stanford GSB.

5.1.2. INSEAD (2nd Rank)

INSEAD is among the world's largest and prominent graduate business schools, since it offers students an experience in global education with its three campuses in Europe (France), Asia (Singapore) and the Middle East (Abu Dhabi), and also associations with leading institutes worldwide. There are more than 1,400 participants in undergraduate and graduate programs, with 145 prestigious faculty members from 40 different countries. Also, an executive education program has been successful in attracting more than 11,000 executives at INSEAD's executive education yearly. (INSEAD, 2018).

Looking at the structure of its MBA program, INSEAD does not have a separate course or content directly related to the design thinking approach; although it is

understood that design thinking has been integrated into its general learning methodology and pedagogy.

One example is Creative Garage, an outside classroom experience, which was launched in April 2016 and is an area where design thinking philosophy is adapted completely. Eight Inc., a world class leading design firm, and INSEAD collaborate in order to create a new space for a new way of learning and also to help making a home for all creative activities at INSEAD's Asia campus in Singapore. Creative Garage is a new environment, which can also be identified as a social space for collaboration, emotion, creation, as well as change. The 1,400 square foot Creative Garage, that is open to all students, alumni and friends of INSEAD, can sometimes be a classroom for action learning, or may be a design studio for creative projects, a gallery of innovations, and a community space to get inspired, generate and exchange ideas (Eight Inc., 2018).

Additionally, "Creative Thinking" MBA courses, as well as "Innovation by Design" Executive programs are taught using the Creative Garage space. The elective MBA course Strategies for Product and Service Development (SPSD–Art Center): Creative Thinking is aimed at managing innovation from an interdisciplinary perspective by preparing the participants to identify and tackle managerial challenges in a team-based course project (INSEAD Course Outline, 2012). This course also benefits from the INSEAD-Art Center Collaboration in time with the field trip part of this course when students are visiting design studios of companies from various industries. The so-called collaboration is a partnership between INSEAD and Art Center College of Design (Pasadena, CA) as part of the MBA program. A four-month learning program has been developed by the Art Center instructors who come to INSEAD every year to train a total of ten students in design on managerial methods. A collaboration between participants from MBA and design provides a fruitful environment “to learn the value of using structured methods for creativity generation and presenting ideas in a holistic way through graphical or physical objects” (INSEAD Teaching, 2018). This collaboration is also supported by the Creativity-Business Learning Platform,

where MBA and design students can work together and exchange their different approaches and perspectives to solve problems and create solutions at INSEAD.

Under the Business School, there is also a number of certificate programs particularly for professionals, in addition to MBA programs. Innovation by Design is one of those programs with open enrollment under the Digital Transformation and Innovation theme in Executive Education. The participant profile is mainly composed of senior executives, team leaders and managers. The participants can benefit from the program by mastering the skills needed to sustain creative-thinking capabilities and acquiring a methodology that allows putting design thinking into action as well. This unique program is developed to help business leaders integrate design thinking with their business thinking skills for successful innovations. The director of the program, Manuel Sosa, is also the Director of INSEAD's Creativity-Business Learning Platform and INSEAD's partnership with Art Center, which means there is a close relationship between the three different education ideas and approaches. (INSEAD Executive Education, 2018).

5.1.3. The Wharton School: University of Pennsylvania (3rd Rank)

As the first collegiate business school, the Wharton School, has been founded in 1881 at the University of Pennsylvania. In 2016-2017, the Wharton School had 4,993 students in four different degree programs: undergraduate, MBA, E-MBA, and doctoral. The school adapted a vision of becoming the most comprehensive source of business knowledge in the world (The Wharton School, 2018).

Like other business schools mentioned and exemplified above, the Wharton School also put innovation at the heart of its learning pedagogy. The school emphasizes innovative education system at all levels of its degree programs and aims at training its alumni around the innovation principle as well. Based on this vision, the design thinking concept is seen important as among one of the innovative thinking and production methods.

The main setting for all those efforts is formed under the William and Phyllis Mack Institute for Innovation Management, a cross-collaboration between UPenn and Wharton. Adapting a multidisciplinary perspective, the Mack Institute fosters “industry and academic communities to transform innovation research into real-world impact”. They also host conferences and workshops throughout the year to share current academic thinking and industry practice in the field of innovation management (William and Phyllis Mack Institute for Innovation Management, 2018).

Also, there is a remarkable effort on design thinking studies along the MBA program as well. Innovation management is a major under the MBA program in the Wharton School. There is a student-led club, called Wharton Innovation and Design (ID) Club, which focuses on raising awareness of design thinking and its role in driving innovation. Through original educational programming, the Club delivers both education and career workshops on a variety of organizational change topics. The sessions are open to all Wharton and Penn students, and provide participants with the opportunity to learn about the design thinking process, brainstorming techniques, and prototype building (Wharton MBA Program, 2016).

Design Thinking Workshop: Prototyping, was an example of the events hosted by the Wharton ID Club. In addition, the Penn Design Challenge (PDC) and MBA Innovation Summit (MBAIS) are two other areas of exploration in the ID Club. The Wharton ID Club emphasizes and explains the importance of both PDC and MBAIS in its website as follows:

“PDC brings together multidisciplinary groups of students across Penn to work on pressing challenges for a corporate sponsor. Over the course of four weeks, groups are coached by a leading innovation consulting firm to apply human-centered design techniques, such as ethnographic research, prototyping, and storytelling, to come up with creative solutions for their corporate client. Since design thinking is a problem-solving process centered around human behavior, it is understood that PDC

emphasizes design thinking methodology. On the other hand, MBAIS is a yearly spring conference in NYC co-organized by Wharton, Columbia Business School and Yale School of Management. MBAIS is the leading innovation conference for business school students today by bringing together over 200+ MBA students with industry thought leaders and professionals.”

(The Wharton Innovation and Design Club, 2018)

The Summit is also a unique opportunity that brings together hundreds of top MBA and Design students, as well as leading corporate and startup innovators. Design thinking is again one of the main themes of the Summit as well.

Along with the events and organizations, there are also courses offering unique development opportunities related to the design thinking mentality. Under the Marketing Department’s schedule, in the hands-on experiential course of MKTG 853 – Special Topics: Design Thinking – A Human-Centered Approach to Innovation, students will partner with a local start-up to apply design thinking steps taught throughout the course. Students use creative, innovative, “Design Thinking” techniques to create solutions to meet those identified partner needs (The Wharton Course Outline, 2018). There is also another course under the Department of Organizational Dynamics at the University of Pennsylvania, namely DYNM 666 – Systems and Design Thinking, which could also be registered and followed by all MBA students in the Wharton School as well (The Wharton Innovation and Design Club, 2018).

5.1.4. Harvard Business School (5th Rank)

Harvard Business School (HBS) was the one that integrated the design thinking approach to its business education programs at a later phase in 2016, almost ten plus years after the design thinking leadership movement began. At the time, the school announced that “Harvard Business School is emphasizing design thinking as one of its big focus areas for leadership teaching in the days ahead”, and, thus, received widespread media attention. Design thinking pedagogy lets the students

think more innovatively about solutions, while breaking their fixed ways of thinking (The Economic Times, 2016).

Since then, HBS constructed executive education programs, courses, professional workshops on the design thinking approach itself. Professor Anthony Mayo from HBS, an expert specializing in leadership, mentioned that design thinking has placed the participant at the heart of the experience to be embodied with an inspired and organized approach for problem-solving. In addition, the dean of HBS, Nitin Nohria, also supports the design thinking approach in order to “create innovative leaders who are more than just analytical thinkers” (Humantific Website, 2016).

The executive education program, entitled Reimagining Strategy: Applying Design Thinking to Your Organization, aimed at giving the perspective on how to apply design thinking to achieve and sustain a competitive edge organizationally and/or personally through in-class discussions, small-group workshops, group exercises, and some post-program virtual follow-ups. This leadership development program also explores how senior executives can apply design thinking to breathe new life into their strategies. Upon completion, the participants of the program are expected to emerge from this experience with the ability to:

- *“Create design-thinking practices core to your strategic approach,*
- *Consider the needs of end users in every strategic decision,*
- *Move quickly to develop innovative solutions,*
- *Tolerate risk and failure in order to boost creative thinking.”*

(HBS Executive Education, 2017)

The suitable participants of the program are expected to be C-level leaders and some senior executives who assume a key part in the definition and execution of technique inside their association. Since HBS is aware that design thinking can be applied in any field from medicine to architecture, it encourages a broad range of

program participants representing industries, geographic regions, and areas of expertise to create a dynamic learning environment. In HBS, there is also the Innovation Lab, the i-lab, which students see as one of the most popular courses related to design thinking (HBS Executive Education, 2017).

A regular workshop program has been adapted in Harvard Extension School as well. The program mainly concentrates and focuses on “listening, user empathy, whole-brain thinking, collaboration, and experimentation” (Harvard Extension School Design Thinking Workshop, 2018). As a professional development program, this design thinking workshop is: “teaching the fundamentals of design thinking to improve organizational performance, help participants to solve complex challenges through the process of structured design thinking, and drive better results by combining design thinking with analytical decision-making” (Harvard Extension School Design Thinking Workshop, 2018). Participants can likewise profit by the workshop by setting up a system for building an environment that cultivates creativity and developing better approaches to team up over all elements of the association.

5.1.5. The University of Chicago Booth School of Business (6th Rank)

Booth School of Business (BSB) shares the University of Chicago’s core values, while also adapting an extraordinarily effective approach to business that leads to new ideas and innovative solutions. Since 1898, Chicago Booth has produced ideas and leaders that shape the world of business. Today, the school empowers bold thinkers and inquisitive minds to dig deeper, discover more, and shape the future (The University of Chicago Booth School of Business, 2018).

In BSB, there are four different types of MBA programs: full-time, evening, weekend, and executive. The design thinking philosophy, as a human-centered approach, has overtones on all these MBA programs. For a long period of time, BSB has structured its MBA programs where students can optimize any financial model and solve any knowable problem. Recently, though, a new question is arising: what happens when it is necessary to create a new business model,

product, service, or customer experience? In order to answer these questions, Chicago Booth adapted the so-called innovative movement, design thinking, in its education philosophy in 2016. Since the school is aware of the fact that students and professionals skilled in design thinking bring new insights to organizations and add value to innovation projects, courses and student-led clubs dedicated to the design thinking methodologies started to emerge.

Following this, the Innovation and Design Club (IDC) was founded to help BSB students learn how to solve real-world problems and connect with firms using the human-centered design approach to innovation. The group of students in IDC created an innovative design and management framework by involving the human perspective in all steps of the problem-solving process (The Innovation and Design Club, 2018). Beyond the classroom, IDC allows the students establish new relationships and build new networks as they explore their career, their interests, and their ideas about design thinking and innovation. The Club also aims at “helping students navigate a potential career in the highly competitive industry of design thinking and introduces students to the firms that foster this methodology” (The Innovation and Design Club, 2018).

In 2016, one year after it was officially established in October 2015 by a combination of 1st and 2nd year students, IDC crushed the competition in the prestigious Rotman Design Challenge. This achievement also proved that the team could be competent against business programs that focus more on design and encouraged the students to create more curricular and/or extra-curricular opportunities related to design thinking (The Chicago Business Newspaper, 2016).

Additionally, the New Products and Services Lab., a ten-week course, also teaches evening and weekend MBA students how to solve real-life business innovation problems. During weekly class sessions, students study the Design Thinking framework and, outside of class, apply the concepts to developing and testing new products and services that address both customer and company needs by partnering student teams with companies. According to a student who have taken

this course, they “not only have learned design thinking methodology, but have actually executed an entire design thinking cycle” (The Chicago Booth Admission Blog, 2018).

5.1.6. Yale School of Management (15th Rank)

The Yale School of Management (SOM) is one of the faculties that allows the philosophy of design to introduce and integrate across its programs. In 2016, design thinking started to make its way into SOM. At SOM, with an integrated curriculum, design thinking approach has been applied to the areas of business and international development. Since design thinking was commonly applied to product design, SOM also used innovative techniques in alternative fields including business, international development, and leadership. For instance, at the Yale Center for Engineering and Innovation Design, one of the university partners, fascinating projects are exhibited for a small intimate audience. At the intersection of business, development, and culture, a multi-disciplinary consultancy related to design and innovation is also employed.

SOM’s clubs and extra-curricular activities also encourage students to work on cases and coursework from different perspectives of customers, competitors, investors, CFOs. For example, the main aim of the Design and Innovation Club is to “educate and empower SOM students to apply design thinking to business challenges and catalyze innovative solutions” (Yale SOM Design and Innovation Club, 2018). In the Club, there are also limitless opportunities in terms of courses that provide additional emphasis on the design thinking process, content activities like workshops and panel discussions around the theme of design thinking, as well as summits and forums to support cross-school collaboration. Additionally, being able to provide community engagement, career events and so-called think-outside-the-box events have also been organized periodically.

5.1.7. Imperial College Business School (51st Rank)

Among one of the worlds’ leading business schools, the Imperial College Business School (ICBS) has been accredited by significant school accreditation

institutions. Employing 66 academics, 12 teaching fellows and 25 researchers, ICBS has inspired the world's best business minds for over 60 years. The school is proud to be successful in attracting a high percentage of international students, in addition to having a global academic and alumni network (Imperial College Business School, 2018).

During recent decades, it is clearly apparent that design thinking as a major competitive advantage can add value to a core business school curriculum while solving a social issue or a business challenge, much more so than utilizing traditional problem-solving methods. Inspiring the best minds to become future business leaders, ICBS adapts a vision of “benefiting business and improving society through the power of innovative thinking” and a mission of “inspiring brilliant minds to be the world's future leaders of business and society and driving global business and social transformation through the fusion of business, technology and an entrepreneurial mindset” (Imperial College Business School, 2018). Accordingly, ICBS identifies this new design thinking approach as: “An innovative group of experts are leading a new approach to enable organizations, from start-ups to multinational corporations, to address the complex multi-faceted problems they face today”. As of 2016, ICBS launched a new module where Full-Time MBA students can benefit from enhancing their entrepreneurial and innovative skills.

In its Full-MBA Program, ICBS offers core classes related to the design thinking concept. The course, namely Design Thinking and Innovative Problem Solving, is seen particularly helpful for those thinking about an entrepreneurial route, while they walk through a journey of imaginative innovation and start thinking about the entrepreneurial process. Different tools and methods exist to foster creative confidence and enable innovative thinking. The following will examine the students in addition to providing the Imperial College point-of-view on Design Thinking.

Imperial Business Intelligence posted a blog with the heading “Design thinking and innovative problem solving for MBAs”, mainly highlighting the following:

“Module leader and Assistant Professor of Design and Innovation, Dr. Ileana Stigliani, explained to the MBAs that design thinking is about developing products and services that meet the subconscious needs of users to allow these products and services to stand out in the market. Design thinking also encourages the use of models and prototypes throughout the creative process to develop a solution. In line, this module encourages MBA students to adapt such a mindset, as well as giving them the opportunity to gain practical experience and meet with world-leading entrepreneurs. A TED Talk speaker, Tim Brown, also President and CEO of IDEO, and Gianfranco Zaccai, President and CDO of Continuum, an innovative company specializing in digital, service and product design were the two external contributors to the module up until today.”

(Imperial Business Intelligence, 2016)

One of the elective courses, in the field of innovation and entrepreneurship also deals with the introduction of design thinking and its practice. This elective module, Design Management, is aimed at providing the participants with concepts and tools to improve their capacity to manage the collaboration with designers in the development of new products and services.

Moreover, under the Department of Innovation and Entrepreneurship, there is also a number of research projects one of which is also called Design Thinking for Innovation. Highlighting the increasing awareness of this new discipline in the business world, design thinking is seen to play a pivotal role in successfully bringing ideas to the market. Therefore, the project focus is completely on understanding the process of design thinking in order to solve complex and ambiguous problems (the so-called “wicked problems”) and identify opportunities for innovation.

Other tools that ICBS is using to integrate the design thinking approach is the Entrepreneurial Journey, which is a live project that explores the key challenges of introducing products and services to the market. This three-month project can be taken in place of two electives, and offers a unique opportunity to build

knowledge, skills and experience in an interactive environment. The main aim of this project has also been highlighted as follows:

“Building on your core teaching in the Design Thinking and Innovative Problem Solving, and Innovation and Entrepreneurship modules, this project will help you apply what you have learned on the MBA so far to an entrepreneurial venture that could actually become a real business at the end. You will learn how to develop a business case based on an innovative idea, take entrepreneurial initiative and use design tools and thinking”.

(Imperial College Business School Full-Time MBA Program, 2017)

As seen above, design thinking is once again a key element for this project while exploring the up-to-date advances in the fields of science, technology, design and business, and cooperating with key researchers and experts as part of a multi-disciplinary team.

Finally, it can plainly be observed that, Full-Time MBA students at Imperial will be able to enhance their abilities and mindsets to be sufficiently innovative in meeting the opportunities and challenges of a globalized and digital environment of the business world in the 21st century, thanks to the most popular innovative problem-solving approach, design thinking.

5.2. Case Studies from Turkey

5.2.1. Koç University

Following its foundation in 1993, Koç University, a non-profit private university, has become one of the leading universities in Turkey. The principle mission of Koç University, as a “Center of Excellence”, is “to cultivate Turkey’s most competent graduates, well-rounded adults who are internationally qualified, who can think creatively, independently and objectively; and who are confident leaders” (Koç University, 2018). Through Koç University’s student-oriented approach and the emphasis on the nurture of critical thinking and creativity, the design thinking pedagogy inevitably became one of the vital educational components.

Based on Stanford University's d.school and IDEO's design thinking approach, Koç University has created a new training program for undergraduate students. With this design thinking-oriented program, the plan is to strengthen the tendency of students to generate innovation and new products, services and processes in the rapidly developing technology and the changing world trends. In the program, approaches such as improving existing processes, solving possible problems with different perspectives and developing creative ideas are evaluated.

The program, which preliminary preparation period of about two years, has been tested with 400 engineers and social scientists working in the industry. The training program will not include any homework. In the program, which allows the student to think about real-life problems and produce solutions, the design of a service or an experience, not just the product, will be considered. Within the scope of the program, there are working groups of 5-6 people with a moderator. During the training period, the basic development of the learner is observed one on one, and the other skills needed for improvement are shared.

The new educational model aims to encourage students to learn from various disciplines such as aesthetic and interpretive understandings, economic and strategic analysis, empirical and quantitative reasoning, ethical-oriented reasoning, humanities, natural sciences, and social sciences, while also developing their related skills. The design thinking approach aims to train students so that they will acquire considerable skills: address any problem or system without prejudice, create unique opportunities, design a system or product from scratch, develop solution-oriented ideas, be inspired from different disciplines, think cross-disciplinary and strategically.

In addition to the training program at undergraduate level, Koç University has adapted design thinking principles in its graduate education. The program, Design, Technology and Society (DTS), under the Graduate School of Social Sciences and Humanities, has a design thinking related course in its curriculum: DTES 514 - Design Thinking for Interactivity. This elective course is structured

as an introduction to developing creative ideas for interaction design (Koç University Graduate School of Social Sciences and Humanities, 2018).

Moreover, there is an extra-curricular project, The Koç University Design Lab, part of the Koç University – Arçelik Research Center for Creative Industries, which was founded under the Department of Media and Visual Arts. Research at the Design Lab mainly concentrates on developing future media, products and spaces. Two academic units: The College of Engineering and the Psychology Department, as well as researchers from Sweden and Finland work collaboratively at the Design Lab. Interaction design is the main focus of the contemporary research here. The project's objective can be best defined as “to develop novel technologies and methodologies that add value to the related industries, primarily in Turkey” (Koç University Design Lab, 2018). Since students at Design Lab are part of DTS graduate program mentioned above, design thinking is also one of the main concepts for the so-called projects.

Another notable project proposed by the Koç University's Office of International Affairs is a winter break program, KOÇeXD @ SILICON VALLEY “design thinking” in Marketing, which was developed in San Francisco in January 15-26, 2018. The program set out to familiarize students with the key concepts in today's marketing while developing skills to understand the dynamics in the marketplace; and with newly- gained insights be able to design and implement meaningful customer experiences. The venue for this winter program was the San Francisco State University Campus. On this campus, there were sessions, seminars, and guest speakers. In addition, excursions were organized to Silicon Valley companies such as Facebook, LinkedIn, Twitter, Google, Apple, and Intel. Being at the heart of technological innovation and entrepreneurship, participants of the program took advantage of the Workshop on Customer Experience Design, Consumer Behavior & Entrepreneurship. With heavy emphasis on the analysis of consumer behavior and the marketplace, this seminar/workshop aimed to provide students with necessary tools to grasp the concept of design thinking; and to be able to generate effective and meaningful consumption experiences at various

levels of brands' interaction with target audiences (KOÇeXD Silicon Valley Program, 2018).

5.2.2. Boğaziçi University

With the vision of “being a leading institution of higher education, one that shapes the future through being a pioneer in education, teaching, and research”, Boğaziçi University (BU) now has 4 faculties, 2 schools, 6 institutes covering 33 undergraduate, 65 graduate and 33 Ph.D. programs. Boğaziçi University’s mission also “encompasses producing universal thought, science, and technology in service of humanity, and playing a pioneering role in encouraging the spread of science, culture, and the arts throughout society” (Boğaziçi University, 2018). Aiming to be the pioneer of change and innovation on campus, both the students and the university itself attach importance to new world trends, and foremost among these is design thinking. Within this framework, this year a group of BU students and academicians were invited to the University Innovation Fellows Program at Stanford University’s Hasso Plattner Institute. This program is designed to bring together students from higher education in many different countries and motivate them to increase campus participation with the concepts of entrepreneurship, innovation, creativity and design thinking. For this purpose, there are intensive design and domain-focused thinking training for four days, followed by inspiring workshops and seminars at d.school. Inspired by the design-minded atmosphere and the Silicon Valley, students plan a series of "design thinking" activities with the support of the BU Entrepreneurship Research Center to advance creative thinking and the ability to work together (Boğaziçi University News, 2018).

To promote the design thinking approach even further, several researchers at BU work on design thinking or teach part-time courses on the subject at the Business School. Also, the university hosts trainings, projects, workshops for a number of design thinking related organizations of either NGOs or other private organizations.

The concept of design thinking comes to the forefront in the Leadership Academy Program, which was prepared in cooperation with Boğaziçi University Lifelong

Learning Center (BUYEM) and with Happiness at Work Platform. In the *Leadership: From Experience to Change Academy*, various training modules were presented to the program participants, including interactive workshops, case studies and team work. Moreover, at the end of each module, a practical project is carried out. One of the significant modules in the training program, “Corporate Integrity, Corporate Culture, Team Management” focuses on the design thinking methodology while looking to the future (Power of Happiness, 2017; Eğitim Caddesi, 2016).

5.2.3. Middle East Technical University (METU)

Founded in 1956, the Middle East Technical University (METU) is widely held in the highest esteem across the nation. The statistics show that presently, the University employs about 791 faculty members, 225 academic instructors and 1.273 research assistants. The current student population is around 28.000, while the total number of alumni is above 120.000 (METU, 2018). METU has adopted the vision of “being a pioneer university at international level, which transforms its region and the world”, and the mission of “attaining excellence in research, education and public service for society, humanity and nature by nurturing creative and critical thinking, innovation and leadership within a framework of universal values” (METU, 2018). METU, in principle, is a university that focuses mainly on education related to the natural and applied science disciplines, as understood by its name. Still, there are departments under faculties and graduate schools of social and administrative sciences, though they are small in number.

Similar to the two Turkish universities mentioned above, the design thinking approach is gaining recognition at METU, though mostly in the departments of the Faculties of Architecture and Engineering, rather than in the Department of Business Administration, some noteworthy examples here are faculty members in the Department of Industrial Design whose research interests are based on concepts related to design thinking. This department has also hosted workshops and similar events on the topic. User Focused Design Workshop directed by Doğan Şekercioğlu from IDEO, USA was an exemplary organization in which IDEO’s design approach, design thinking methods and the internet of things were

presented (METU, Department of Industrial Design, 2016). Besides employing academicians and researchers that are interested in design thinking, the Department of Metallurgical and Materials Engineering also offers an interdisciplinary course, namely Design Thinking Studio, to undergraduate students as part of its core curriculum (METU, Department of Metallurgical and Materials Engineering, 2018).

In METU, Design Factory (DF), which is open to all students from all levels and all disciplines was founded in January 2015. The education principle of METU DF is stated as: “bringing together interdisciplinary student teams from design, engineering, and business disciplines to develop innovative product ideas and prototypes through extra-curricular programs”, by converting theoretical knowledge and the practical expertise of students. The educational events of Interdisciplinary Design Studio (IDS) cover the main themes of “interdisciplinary collaborative work, real life problems, feedback from the field and industry, and rapid prototyping”. METU DF creates and actualizes applied projects on the related areas of design, technology and innovation by using the most recent production techniques. In addition to various production areas, DF has areas for socialization, workshops, seminars, and collaborative studies (METU Design Factory, 2018). A conference held in DF: Design Thinking: The Creative Power of Teams, presented by Prof. Ulrich Weinberg, the Director of the School of Design Thinking at Hasso Plattner Institute, was an exemplary organization. Another significant event in the field was a design thinking training seminar for entrepreneurs in METU TEKNOKENT in 2016. The participants of the seminar had the opportunity to practice the main phases of design thinking (METU Design Factory, Yearly Archives 2016).

METU DF is a member of Design Factory Global Network (DFGN), which provides many opportunities for students in terms of practical training for solving real and challenging industrial projects: an appropriate environment for the development of new ideas together with leading academics and other initiatives for businesses, and interdisciplinary research opportunities with industry partners.

The network of 13 innovation centers is operates in different countries from five continents (METU Design Factory, Yearly Archives 2016).



CHAPTER 6: RESULTS AND FINDINGS

The history of the awareness and development of the concept of design thinking started in the pre- and early-1960s. Following the last decades of the twentieth century, especially with the impact of the book “Design Thinking” written by Peter Rowe in 1987, the methods and approaches of design thinking started to draw more attention. Design thinking is not viewed as restricted to planners; on the contrary, outstanding innovators in various disciplines, such as literature, art, music, science, engineering, and business are fully involved in the concept. Design thinking is an iterative procedure in which everyone involved challenges suppositions and reclassifies issues, while keeping in mind the end goal, which is to recognize alternative techniques and strategies that are not immediately apparent under existing circumstances. Essentially, design thinking gives a solution-focused way to tackle challenging issues. It is, in fact, a state of mind which requires hands-on strategies by all those involved.

From the business perspective, design thinking inspires institutions and organizations to concentrate on the people they are producing for. This path will eventually lead to the desired effect: human-centred products, services, and internal processes. Design thinking was first adapted for business purposes by the founder of a design consultancy company, IDEO, in 1991. Tim Brown, CEO of IDEO, describes and considers two common interpretations of design thinking in the business world as follows:

1. Designers bringing their methods into the business world by either taking part in the business process themselves, or training business people to use design methods.
2. Designers achieving innovative outputs or products

(Brown, 2009)

Adapting the view of designers, design thinking, as the ideal harmony between desirability, technical feasibility, as well as financial feasibility, causes

associations to be more imaginative and better differentiate their brands, while putting up their products and services for sale on the market in a faster way (Andrews, 2015).

With the beginning of the twenty-first century, a noteworthy growth in the interest in design thinking has been observed. The term turned out to be quite popular in the business media. Many scholars such as Florida (2002), Pink (2006), Martin (2007), Gladwell (2008), Brown (2009), Lockwood (2010), Kumar (2012), Keeley (2013), and Erwin (2014) have written books for the business world about creating design-focused workplaces in which there is a developing innovation. This new trend of shifting design thinking away from the creation of products into the business sector also provokes discussions in terms of taking advantage of the design thinking phenomenon concomitantly.

In addition to its place in the business world, design thinking is becoming more widespread in the education discipline. Many of today's problems in higher education arise because of the lack of a multidisciplinary approach. It is urgent that all disciplines come together to adapt new knowledge and innovative solutions to create a collaborative learning environment to meet the educational needs of the 21st century. At this juncture, design thinking is a valuable learning tool/approach to promote creative thinking, teamwork, and student responsibility in the global education system. Along the K-12 sector implementations, new approaches in design thinking have also been integrated in the universities both at undergraduate and graduate levels, especially in those linked to business and innovation studies. An outstanding early attempt was first presented by Stanford University's the Hasso Plattner Institute of Design, also known as the d.school, in 2003.

There are different methodologies for the integration of design thinking into business education. As a means of making the design thinking approach a focal point, design thinking methodology can be taught by adapting elective and/or core courses, organizing workshops and bootcamps, constructing independent creative

labs/areas, establishing joint programs with the design faculties within or inter-university networks, as well as employing academicians and/or researchers focusing on the design thinking theme. The case studies show that the most successful business schools globally, tend to, at first, choose one alternative way, while at the same time, increasing the awareness of the design thinking approach among its education environment. However, later they take advantage of many alternative tools of design thinking integration as well.

In the thesis, utilizing a case study approach, a total of ten successful business schools from the world and Turkish universities has been reviewed in detail to reveal these different methods of integration. The results of the research showed that there is not a structured way of integrating design thinking methodology in common. As also mentioned above, every business school benefited from totally different methods of integration in terms of their singular choice. The findings also emphasize that there is a lack of researchers which could be able to ideate and deal with the design thinking mentality at higher education level, especially in terms of the business discipline. At this point, the main contribution of this thesis to the literature is that as the thesis highlights, it is vital to prepare a strategy road map which aims to define the process of design thinking integration step by step in detail and a structured way for increasing the success of the business schools globally while also meeting the 21st century's education trends and the changing business world requirements.

At the global level, adapting the ranking of Financial Times 2018, the first five business schools have been examined, in addition to two more ones from the same ranking which are showing considerable effort in integrating design thinking methodology. First, as mentioned above, Stanford University's d.school was the place of birth for popularizing the design thinking concept among business education worldwide. A deeper understanding of Stanford Graduate School of Business, the first-ranked business school in the world, allowed us to notice that design thinking is at the intersection point of business-specific disciplines dealing with both coursework and experiential learning methodologies. Design thinking

methodology is also supported by free webinars, executive bootcamps, workshops and certificate programs at the business school. The second leading institution in business education, INSEAD, offers an outside-class experience, namely Creative Garage, along with the mainstream courses and executive and certificate programs, which are also adapting the design thinking perspective. Thirdly, the Wharton School at the University of Pennsylvania is also advancing the design thinking approach by hosting events such as workshops and summits, again along with courses that offer development opportunities in design thinking mentality. Fourth, Harvard Business School started to follow this new-world business education trend, but at a later phase, in 2016. The school encourages its students to attend executive education programs, courses, and professional workshops related to the design thinking approach. Next, in the Booth School of Business, from the 6th rank, design thinking is demonstrated as a philosophy in its four different types of MBA programs. As a human-centred approach, students are at the heart of the integration process, and they are adapting the principles of innovative problem-solving methods within the framework of design thinking in their student-led clubs. Two more business schools are also evidenced with their successful practices of integration of design thinking into contemporary business education. Yale School of Management and Imperial College Business School promote the design thinking approach by using similar methods such as student-led clubs, workshops, panel discussions, elective courses, and research projects. In addition to all these efforts, hiring academicians and/or researchers specialized in design thinking, is also highlighted as important in all the reviewed business schools. In summary, it is understood that for contemporary business education, design thinking integration is today a worldwide priority.

The picture in Turkey is somehow different from the global perception and patterns. In our case study, the 20 most successful departments of business³ have been reviewed for the Turkish case. However, it is evidenced that the design thinking approach is emerges as a methodology in only three universities, namely

³ Please see Appendix A.2. for a detailed list of universities in Turkey.

Koç University, Boğaziçi University, and METU. One of the leading private universities, Koç University, has prepared a new undergraduate program complying design thinking orientation. The program is aiming at learning at a multidisciplinary manner while also developing related skills as. The university also supports this program by offering elective courses at graduate level, providing extra-curricular projects at Design Lab, and proposing winter break programs in collaboration with Silicon Valley. Secondly, Boğaziçi University attaches importance to the design thinking approach to pioneer change and innovation on the campus. For this aim, students and academicians have attended workshop and seminars on the University Innovation Fellows Program at d.school just this year. The university focuses on design thinking methodology in cooperative platforms as well. Finally, METU is also one of the universities integrating the design thinking approach, but from the architecture and engineering perspectives rather than the business discipline. Studio courses related to design thinking and the Design Factory, an independent creative area, are the two exemplary practices of design thinking integration at METU.

Compared with the showcases from the world, Turkey is said to be falling quite behind in the integration process of design thinking methodology since it is proceeding with baby steps. Apart from the efforts of the above-mentioned universities, it is also observed that Özyeğin University and Izmir University of Economics (IUE) have executive MBA courses, while Bahçeşehir University and İstanbul Trade University have certificate programs introducing the design thinking approach. Although IUE is one of the leading universities in starting the integration process, today it shows no discernible development in the related area. Neither do the other universities. In order to achieve an education level at the world standards, design thinking methodologies must be integrated into learning environments; in fact, they need to be focal points, especially in business education. Because of all the reasons and findings mentioned previously, it is strongly recommended that the design thinking approach be integrated in all the Turkish universities. Providing that this integration is facilitated, innovative problem-solving tools with a human-centred approach will definitely enhance the

success of our business schools at a global standard. Together with this integration, Turkish universities should also closely up-to-date design thinking methodologies adapted in the most successful universities from the world.

Table 2 below gives a short summary for the findings of different design thinking methodologies at all business schools covering in the case study analysis. As mentioned several times before, all universities have their own way in integrating design thinking. The green and white areas in here should not be seen as parts of a whole. More precisely, it should not be considered to be useful in calculating an integration percentage. These are only pathways, consisting of different steps.

Table 2. Summary of the Findings

Name of the University	Key Issue	DT Course	Executive Education	Creative Area	Student Club / Initiative	Researcher focused on DT	Joint program
Stanford Graduate School of Business							
INSEAD							
The Wharton School							
Harvard Business School							
Booth School of Business							
Yale School of Management							
Imperial College Business School							
Koç University							
Boğaziçi University							
METU							

CHAPTER 7: LIMITATIONS AND FURTHER RESEARCH

Since every research may face some limitations, this thesis also has some examples. Among possible methodological limitations, lack of available and/or reliable data, lack of prior research studies, and similarly, lack of researchers on the design thinking topic are the three major limitations of this study. During the study, all the qualitative data adapted has been mainly from the websites and magazines/daily journals since there was not available and sufficient sources in the field of academic research which is also caused by the lack of the researcher as well.

Although there are a number of gaps in the knowledge around design thinking integration, the results would still be relevant for further studies while developing a model for a tailor-made way of design thinking integration to the Turkish higher education system with an extensive analysis. As mentioned before, the main finding is that the thesis revealed the vital need for a strategy roadmap in terms of underlying design thinking integration process in detail, both at theoretical and applied levels. To do so, one of the recommendations is that a public awareness, especially in Turkey, among the educators and trainees should be well established. Also, an in-depth exploration of the qualitative data on how and why design thinking methodologies became prominent for the business education would be helpful. Additionally, different methods and tools of integration should be well-defined in order to be able to select and apply the most qualifiable one. Finally, a structured strategic roadmap considering the human-centred, innovative, and multidisciplinary nature of design thinking could be developed for both global and Turkish cases.

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APPENDIX A.

A.1. Global MBA Ranking 2018 (FT.com Business School Rankings)

Rank in 2018	Rank in 2017	Rank in 2016	3-year average rank	School name	Country
1	2	5	3	Stanford Graduate School of Business	US
2	1	1	1	INSEAD	France / Singapore
3	3	4	3	University of Pennsylvania: Wharton	US
4	6	3	4	London Business School	UK
5	4	2	4	Harvard Business School	US
6	9	8	8	University of Chicago: Booth	US
7	7	6	7	Columbia Business School	US
8	11	17	12	Ceibs	China
9	13	9	10	MIT: Sloan	US
10	13	7	10	University of California at Berkeley: Haas	US
11	10	16	12	Iese Business School	Spain
12	12	11	12	Northwestern University: Kellogg	US
13	5	10	9	University of Cambridge: Judge	UK
14	15	14	14	HKUST Business School	China
15	15	18	16	Yale School of Management	US
16	18	22	19	Dartmouth College: Tuck	US
17	27	31	25	Cornell University: Johnson	US
18	26	32	25	National University of Singapore Business School	Singapore
19	24	21	21	Duke University: Fuqua	US
20	17	23	20	Esade Business School	Spain
21	20	15	19	HEC Paris	France
22	24	29	25	Nanyang Business School	Singapore
23	19	19	20	New York University: Stern	US
24	21	13	19	IMD	Switzerland
25	32	34	30	UCLA: Anderson	US
26	23	20	23	University of Michigan: Ross	US
27	33	28	29	University of Oxford: Said	UK
28	27	29	28	Indian School of Business	India
29	22	25	25	SDA Bocconi	Italy
30	40	44	38	Georgetown University: McDonough	US
31	29	24	28	Indian Institute of Management Ahmedabad	India
32	35	27	31	University of Virginia: Darden	US
33	39	44	39	University of Hong Kong	China
34	34	39	36	Shanghai Jiao Tong University: Antai	China
35	49	62	49	Indian Institute of Management Bangalore	India
36	30	38	35	Alliance Manchester Business School	UK
37	31	42	37	Rotterdam School of Management, Erasmus University	Netherlands

37	43	41	40	University of North Carolina: Kenan-Flagler	US
39	-	43	-	Renmin University of China School of Business	China
40	38	33	37	Carnegie Mellon: Tepper	US
41	44	46	44	Warwick Business School	UK
42	-	47	-	Fudan University School of Management	China
43	36	26	35	CUHK Business School	China
44	46	47	46	University of Texas at Austin: McCombs	US
45	64	53	54	Rice University: Jones	US
46	37	37	40	City University: Cass	UK
47	51	55	51	Emory University: Goizueta	US
48	41	49	46	University of Washington: Foster	US
49	-	-	-	Singapore Management University: Lee Kong Chian	Singapore
50	68	80	66	Washington University: Olin	US
51	57	-	-	Arizona State University: Carey	US
51	45	35	44	Imperial College Business School	UK
51	54	69	58	Sungkyunkwan University GSB	S Korea
54	61	71	62	Georgia Institute of Technology: Scheller	US
55	69	-	-	Purdue University: Krannert	US
55	52	51	53	University of Maryland: Smith	US
57	47	54	53	Indiana University: Kelley	US
58	-	-	-	University of Florida: Hough	US
59	48	52	53	University of Southern California: Marshall	US
60	59	60	60	University of St Gallen	Switzerland
61	54	49	55	Mannheim Business School	Germany
61	53	57	57	Cranfield School of Management	UK
63	54	66	61	AGSM at UNSW Business School	Australia
64	62	57	61	University of California at Irvine: Merage	US
64	75	66	68	Durham University Business School	UK
66	76	87	76	Melbourne Business School	Australia
67	80	69	72	Boston College: Carroll	US
68	63	75	69	Ohio State University: Fisher	US
68	65	80	71	Brigham Young University: Marriott	US
70	42	35	49	Lancaster University Management School	UK
71	65	68	68	Wisconsin School of Business	US
72	58	65	65	Michigan State University: Broad	US
73	79	71	74	Vanderbilt University: Owen	US
73	91	98	87	University of Edinburgh Business School	UK
75	74	84	78	Edhec Business School	France
75	89	89	84	Pennsylvania State University: Smeal	US
77	60	76	71	University of Notre Dame: Mendoza	US
78	95	-	-	Indian Institute of Management Calcutta	India
78	-	85	-	McGill University: Desautels	Canada
80	70	40	63	The Lisbon MBA	Portugal
81	87	90	86	Babson College: Olin	US
82	85	98	88	University of Pittsburgh: Katz	US
83	77	86	82	University of Rochester: Simon	US

84	-	96	-	University of Connecticut School of Business	US
85	88	71	81	University of Minnesota: Carlson	US
86	65	60	70	University of Toronto: Rotman	Canada
86	82	71	80	Boston University: Questrom	US
88	70	64	74	ESMT Berlin	Germany
89	70	-	-	Rutgers Business School	US
90	94	88	91	Western University: Ivey	Canada
91	-	-	-	SMU: Cox	US
92	-	98	-	Leeds University Business School	UK
93	93	-	-	University of Texas at Dallas: Jindal	US
94	-	-	-	WHU Beisheim	Germany
94	70	79	81	University College Dublin: Smurfit	Ireland
96	-	-	-	Essec Business School	France
97	-	59	-	University of San Diego School of Business Administration	US
98	80	63	80	University of Strathclyde Business School	UK
99	-	-	-	EMLyon Business School	France
100	-	-	-	Copenhagen Business School	Denmark
100	-	98	-	University of Bath School of Management	UK

A.2. The Most Successful Departments of Business Administration in Turkey

Rank	Name of the University	Base Points
1	KOÇ UNIVERSITY	508.062
2	BOĞAZIÇI UNIVERSITY	492.845
3	BİLKENT UNIVERSITY	467.894
4	GALATASARAY UNIVERSITY	460.415
5	TOBB UNIVERSITY	457.744
6	ÖZYEĞİN UNIVERSITY	457.168
7	METU	451.215
8	İTÜ	438.828
9	BAHÇEŞEHİR UNIVERSITY	415.073
10	İSTANBUL BİLGİ UNIVERSITY	407.514
11	MEF UNIVERSITY	393.845
12	İZMİR UNIVERSITY OF ECONOMICS	388.430
13	YEDİTEPE UNIVERSITY	388.009
14	KADİR HAS UNIVERSITY	383.510
15	ŞEHİR UNIVERSITY	382.530
16	MARMARA UNIVERSITY	378.300
17	İBN-İ HALDUN UNIVERSITY	377.480
18	İSTANBUL TİCARET UNIVERSITY	374.010
19	ABDULLAH GÜL UNIVERSITY	364.750
20	YAŞAR UNIVERSITY	361.530