Design Briefs for Industrial Design Studio Courses: Determination of Expectations and Requirements[*]

Tasarım Tanım Belgesinin Tasarım Stüdyosunda Kullanımı Üzerine Bir Araştırma: Beklenti ve Gereksinimlerin Belirlenmesi

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To cite this article/Atıf için:

Abstract. This study aims to determine the basic elements relating to a tool to be used in Design Studio courses; one of which intertwined with daily life technologies through the usage of patterns and habits of a Design Brief. In order to address the main purpose of the study in a holistic approach, a mixed method research was used combining qualitative and quantitative methods. Data were collected through face-to-face interviews and online survey forms from Design Studio course instructors working in industrial design departments in Turkey. The study presents there is a need to reconstruct some components of the Design Brief in such a way to accompany the dynamic structure of the project process, there are problems related to the current medium, and the attitudes of the new generation students must be taken into consideration when designing a new medium for the Design Brief as a new learning tool.

Keywords: Design studio, Design brief, Industrial design education, Design students

Öz. Bu çalışma günlük yaşam teknolojileri ile iç içe geçmiş olan Tasarım Stüdyosu derslerinde kullanılacak bir araçla ilgili temel unsurları, Tasarım Tanım Belgesi kullanım pratikleri ve alışkanlıkları ile ilişkili olarak belirlemeyi amaçlamaktadır. Çalışmanın ana amacını bütüncül bir yaklaşımla ele alabilmek için nitel ve nicel yöntemlerin bir arada kullanıldığı karma bir araştırma yöntemi kullanılmıştır. Çalışmada veriler, Türkiye'de Endüstri Ürünleri Tasarımı bölümlerinde çalışan Tasarım Stüdyosu ders yürütücüleriyle yüz yüze görüşmeler ve çevrimiçi anket formlarıyla elde edilmiştir. Çalışma, Tasarım Tanım Belgesinin bazı bileşenlerinin tasarım sürecinin dinamik yapısına eşlik edecek şekilde yeniden yapılandırılması ve bulunduğu mevcut ortamla ilgili sorunlar yaşandığını belirlenenmiştir. Tasarım Tanım Belgesinin yeni bir öğrenme aracı olarak ele alınmasında kullanılacak yeni bir ortama yönelik yeni nesil öğrencilerin görüşlerinin alınması gerektiğini önerilmektedir.

Anahtar Kelimeler: Tasarım Stüdyosu, Tasarım Tanım Belgesi, Endüstriyel tasarım eğitimi, Yeni nesil öğrenenler

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[*] This article is derived from the doctoral dissertation prepared by Duysal Demirbaş under the advisory of Prof.Dr. Şebnem Timur Öğüt at Istanbul Technical University, Graduate School of Science, Engineering and Technology, Industrial Product Design Program.

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Introduction

Industrial Design education is carried out with a project-based learning model. In this educational model, learning how to design and design practice itself are interwoven. The emphasis of the project-based learner on the process (Erdem, 2002) is reflected by the studies on the instruction of product design courses in Industrial Design education. In a studio education, the relationship between students and academicians is often referred to as a master-apprentice relationship in accordance with the model in which learning is inextricably linked to practice (Ciravoğlu, 2014;Van Dooren at al, 2014). In this network of relationships, experiences which are inherited from generation to generation have influenced not only during the course but also in the design of existing tools used in the studio.

Today, depending on the developments in the field of education, the design of tools and environments to be used in the design studio are becoming increasingly important. Considering the recent studies in Industrial Design education, a great potential is perceived in the use of technology related to the environment and tools to be used in process of learning how to design (Bender & Vredevoogd, 2006; Chen & You, 2010; Pektaş, 2015). Therefore it is important to introduce and comprehensively transfer the experiences of academicians who run studio courses on the use of existing tools in order to form the criteria of an updated learning tool to be more consistent with contemporary needs. This study aims to determine the basic elements of a Design Brief taking into account the need and expectations of academicians. The findings of the study are important not only for determining criteria for a learning tool but also for revealing existing relationships between learners and academics as well as monitoring the effects of technology on changes in learning environments and tools.

Theoretical Background

Industrial Design Education

Recent studies in the field of Industrial Design have displayed a tendency towards inclusion with the issues and problems discussed by other disciplines. The most recent definition (ICSID, 2015) published by the World Design Organization has expanded its scope, taking into account developments in this context:

> "Industrial Design is a strategic problem-solving process that drives innovation, builds business success and leads to a better quality of life through innovative products, systems, services and experiences." With this definition in mind, design is positioned as a process-oriented discipline, and a more holistic view has been adopted when developing design solutions.

These changes within the profession also affect undergraduate education. As the definition of profession becomes more complex, it becomes compulsory for Industrial Design education to use new methods and tools to experience occupational practices. Considering the undergraduate education programs in Industrial Design with regard to course hours and credit, Design Studio courses are the main educational environment in design learning and teaching processes (Dutton, 1987). Design Studio courses represent a studio-based training system in which subjects are handled in a process-oriented approach (Crowther, 2013). The reason for the emphasis made on the place is that the course also includes the physical description of the learning environment at the same time. In recent times, the design studio course has expanded these existing boundaries utilizing new technologies, such as online access, towards an experience somewhat removed from the immediate environment (Afacan, 2014; Bender and Vredevoogd, 2006).

The Design Studio can be defined as a process which academicians and students are constantly interacting with, evaluating and developing the solution proposals for, in order to solve a design problem that ends up with evaluation of the design proposals by a jury of academicians and/or experts (Bender and Vredevoogd, 2006; Sachs, 1999). In the Design Studio, learning how to design and the actual practice are intertwined (Schön, 1987). Learning that takes place while solving a realistic problem specific to a project is also defined as Project-based Learning (Demirhan and Demirel, 2003; Erdem, 2002; Vatanesever Bayraktar, 2015). During the course of a project, the academicians who give instruction on the course are required to inform the students about project-related expectations and how the process will work, and students should be informed about project-related criteria, delivery conditions and time planning (Schön, 1987). The Design Brief is a fundemental tool used to address this need in design education.

Design Brief

Design studio courses in Industrial Design education are handled within a learning-centered approach with a project-based learning model that will form the basis of design education. "For the experienced designers, this process is not divided into separate steps and actions, but the process can be dealt with as an undivided whole consisting of unconscious steps" (Van Dooren et al., 2014). Although the academicians who teach the course have various academic backgrounds they have a predictive power about what they will need in this process depending on their past personal experiences. However, for the learners, the Design Studio should be constructed and instructed within the framework of the learning output of the course and the program (Worman, 2011).

The "Design Brief", which includes sections such as project prospects, purpose and scope, process expectations, evaluation criteria and working schedule, is one of the key components of this process (Jones & Askland, 2012; Ryd, 2004). With this document, the academicians tell the students how the expectations and process will be handled and the students can act accordingly by being informed about the criteria and time planning for the project. The Design Job Description, Project Folder, Project Brief, Project Description Document, Marketing Brief, Business Ticket, Innovation Brief and Creative Brief terms are also used among different sources and people instead of the term Design Brief (Kapkın, 2010). This document is sometimes referred to as "föy", originally from the French (feuille), meaning a document containing brief information. This tool will be considered as the "Design Brief" within the framework of this study.

In studio education, the Design Brief is very important in terms of being the first step of the project process. Not only does it start the process which the students and project coordinator will work on together, but it also includes the steps with which the process will be carried out (See Fig. 1). As expressed by Philips, despite its various names, the brief is essentially a description of the scope of the project; it is a document that identifies the calendar of the project, the quality of the resulting product, and helps to control the project and decision process (Phillips, 2004).

Figure 1. Sample Design Brief (Personal Archive).

The Design Brief in an educational context has two intended users: an academician who prepares the document and the student who takes this brief. The strategic differences between teaching and learning processes also change and differentiate the way these two stakeholders use the Design Brief. The transformation of everyday life technologies for the purposes of educational environments also necessitates the transformation of the tools and methods used in these environments. As the Design Studio offers an individual process within the framework of a single/common project theme for each learner, it becomes more important to benefit from potentials of technology use in education for more personalization amidst greater collaboration (Gan, Menkhoff, & Smith, 2015).

Method

This study aims to determine the priority criteria of a new generation Design Brief from the perspective of academicians. In order to address the main purpose of the study, a mixed research method incorporating both qualitative and quantitative elements was used. Since the literature on how and for what purposes Design Brief is used within the learning environments is insufficient, exploratory research design has been preferred as it lets researchers collect data in the initial phase of the study and develop data collection tools to analyze and interpret findings with a holistic approach (Creswell, 2016; Miles & Huberman, 2016). Consequently, it was started by interviewing Design Studio instructors and the themes obtained from the interviews set out the titles of the questionnaire used in the quantitative part of the research.

In this context, the research aimed to find answers to the following questions:

1. What are the practices of use for academicians' Design Briefs?

2. What are Academicians' expecttitations in using Design Briefs?

Qualitative Research

Participant group

In the qualitative part of the study, participants were chosen through the use of convenience sampling which gives the researchers speed and practicality (Yıldırım & Şimşek, 2016). The participants of the research consist of Istanbul Technical University and Anadolu University which the researcher works.Each of these departments has min.15 years of a design studio tradition and experience. Design Studio is not only a course, but also a design teaching/learning methodology. Therefore, the design studio that is addressed in this study is carried out in almost every part of the world with similar methods and understanding (Lawson & Dorst, 2009). The convenience sampling used in this study was chosen for being a practical purposive sampling method to contribute to the inability to understand research questions in the best way (Creswell, 20169: Interviews were conducted with 6 Design Studio instructors from Anadolu University, and 3 instructors from Istanbul Technical University, making a total of 9 academicians.

Table 1.
Properties of Participants

Participants	University	Experience in Design Studio	Academic Title
P1	ITU	25 years	Professor
P2	ITU	13 years	Assistant Professor
P3	ITU	20 years	Lecturer Dr.
P4	Anadolu University	8 years	Research Assistant
P5	Anadolu University	22 years	Assistant Professor
P6	Anadolu University	14 years	Lecturer
P7	Anadolu University	14 years	Lecturer Dr.
P8	Anadolu University	11 years	Assistant Professor
P9	Anadolu University	6 years	Research Assistant

Data collection

Semi-structured face-to-face interviews were conducted with academicians who are one of the stakeholders conducting Design Studio courses to create an insight into the habits involved in using the Design Brief. A pilot of interview questions were conducted and forms were re-arranged due to the framework of the opinions and suggestions.

It is important to test the questions prepared with the interview with a group of individuals and to make the necessary expression changes according to this essay and to write new questions if necessary (Yıldırım & Şimşek, 2016).

Data analysis

The interviews were recorded with a voice recorder and then transcribed by the researcher using the Microsoft Word program. Content analysis was conducted to analyze the data obtained from the interviews. Interview records were coded using the NVIVO 11 Qualitative Data Analysis Program taking into account the common and similar opinions, and similar codes were put together into themes. Codes and themes created during the analysis stage were presented in the form of models and graphs. In analysing the data, the names of the academicians were kept confidential, and code names were given to the interviewers randomly numbered without any special system. Therefore, in the presentation of the findings, no private information was used for the academicians making it impossible to identify anyone as suggested by Yıldırım and Şimşek (2016).

Quantitative Research

Sampling of research

In the quantitative part of the study, population of the study consists of Design Studio course instructors in Turkey which provides Industrial Design education. In Turkey there are total 28 industrial design departments. Due to limitations of the universe total population sampling is used. According to academic staff information reached by web pages of departments there are approximately 250 full-time academicians including research assistants in 2016-2017 academic year. Not all of the academicians in the staff take part in Design Studio courses so returns on the questionnaires were estimated to be between a sample consisting of 100-150 academics. Participants (44 in total) who responded to the survey were included in the study.

Data collection

Online questionnaire forms were used as the data collection tool in the research. The questionnaire is a self-reporting based data collection tool that each participant fills up as part of the research. It is used to get information about participants' thoughts, feelings, attitudes, values, perceptions, personality and behavioral intentions (Larry & Christensen, 2014). In the quantitative part of the study, questions were restated within the framework of the themes and subheadings obtained from the interviews. The online questionnaire form prepared for the academicians was shared with 3 lecturers from Anadolu University and reorganized in the light of the feedback that was received from them. There were 27 questions in the online questionnaire form consisting of 4 questions about demographic characteristics of participants, 9 questions about Design Brief and 14 questions about Design studio practices. The questionnaire was then shared using the researcher's own e-mail and personal social media account with the heads of the 28 Departments of Industrial Design which provide training in Turkey.

Data analysis

The numerical and percentage distributions of the obtained data were analyzed and presented by SPSS 24.0 statistical program. Analysis of the open-ended questions in the questionnaire was done using NVIVO 11 Qualitative Data Analysis Program.

Findings

Findings obtained from the use of qualitative and quantitative research methods are presented below.

Findings from the qualitative research

It was seen that academicians expressed their current usage habits in 2 different ways. The first theme being the practices related to sharing the document with the students to deliver the subject of the project, and the second theme being the application practices of the Design Brief in the process. The usage theme was of particular importance when understanding how and through which environments the Design Brief is involved in the design process and the roles it plays throughout whole project process. The codes and sucodes related to the coding obtained from the views of academicians on this subject are presented in Table 1.

Table 1.
Usage Habits and Practices of Academicians in Connection with the Design Brief

Theme	Codes	Subcodes
Sharing Design Brief with students	Oral sharing	
	Inscriptive Sharing	
	Digital Sharing	Sharing via Mail
		Sharing via social media
	Design Brief oral presentation session	
Practices of academicians' use of Design Brief	Functions of Design Brief	Not to stay out of scope
		As a learning management tool
	Possession of the Design Brief	
	Years of professional experience	

All of the academicians, except one, stated that they shared all of the briefs they prepared in a printed version with the students in the class. Two academics explained that the printing of the document conferred an official status onto the brief and that it became a useful educational tool in itself. One academician stated that he/she preferred only digital media, eschewing print.

> But, in fact, the right or the legal thing to do is to deliver this brief in printed form or to give a copy of this brief to students and make them photocopy it themselves.

> The printed part is important, as I said before, it becomes a part of the examination papers, it is something like a question paper so it is important.

In parallel with the production of the Design Brief in print, the same document was also shared digitally via social media and e-mail, as stated by four academicians in interview. One academician stated that sharing the subject of the project by verbal announcement, without a printed or digital medium, was an outdated method used in the past.

In the interviews it was found that documents used in previous years were used in the preparation of the Design Brief by academicians who kept these document formats as a type of residual template based on their own personal experiences as project executives (Table 1). The formal similarities in the layouts of the components in the Design Brief are thought to have originated from this situation. While one academic believes he/she has benefited from his/her personal experience as a reference in the preparation of the document:

> I do not use it (in referring to learning outputs), but if I feel the need to use it, I can reach it. There is a system that has been used for years and has become tradition.

Another academician pointed to its role as a corporate archive or source;

> We repeat the format that has been used by the current department... The format we have been using for years is already in our records digitally.

Another academician commented on the presumptions relating to content and the components that ought to be included in the document;

> Well, we think that we have already internalized it. However, maybe it is not so internalized. It should be checked again.

The second step in sharing the Design Brief with the students is the oral presentation sessions on the project topic or problem description. The academicians explained the content and the process of this session in similar ways;

> In the first class we read and go over the brief... Whoever the instructor is he/she reads it or tries to read it. We read it because they don't read it. What do we want? What is the subject of the project? What's the scope? We're explaining it to some extent.

One academician said that the function of this session was to establish a consensus on the content and expectations of the stakeholders;

> Then we gave the students about 10-15 minutes to read it. At the end of the 15 minutes we talked about the brief. Are there any parts you cannot understand? Do you have any points that you object to? We talked about assessment criteria.

The other academics explained this session as a stage where the topic of the project was discussed from different angles;

> I read the brief to students. I say, let's read it directly ... For example, 'Does it match up to something in life? Is there a need for something like this or not?' I am trying to expand the world of the students so that it can be economically, socio-politically linked to the project. This is the first thing I do as soon as I get into the first class that day.

This explanation session can be viewed as a session aimed at clarifying the stages with which the process will progress and examining the expectations of both users and parties by taking advantage of the possibilities of verbal communication about a written document. Although almost all of the academics shared the Design Brief in print, it appears that they repeated some points about the project's topic or made extra explanations and carried out discussions on the understanding of the boundaries of the project. The interviews made it clear that things which the project executors want to share about the subject of the project and the process are not limited to the Design Brief.

It seems that the most obvious element of the usage of the Design Brief is the academicians' habit of keeping this tool with them. All the academics who stated that they carry the Design Brief with them had it in print format in their file;

> I have a brief in my file and scrap paper that I can draw on or make notes on about the course. I mean I always have a brief with me. I carry it as a file while going to class. In this project file, there are documents and notes taken for students etc.

An important part of the usage experiences of the academicians with the existing Design Brief is about students themselves, the second users of this document. The difficulties faced by academicians in expressing current problems often arise from the views about students and their their usage habits.

Eight of the nine academicians who were interviewed indicated that the students did not have the design brief with them and that they did not read it carefully. One of the academicians explained that the students did not give importance to the Design Brief by giving the following example;

> I asked, 'Does anyone have a brief with him/her?' I'm doing it on purpose, but they did not have the brief with them. It was surprising. I mean there were students who showed it on their mobile phone but they were generally unresponsive.

Another scholar also expressed his/her opinion on the usage of documents by students;

> I sometimes ask students if they have the paper with them or not and the vast majority of them don't carry it with them and they do not follow it.

Another scholar noted that he/she observes that there is a change in the way the document is displayed;

> But, for example, I always feel uncomfortable with the way that the student does not make as much effort as I have made. They don't carry it with them and they display it on screen as it has become more digital.

Similarly, one of the academicians draws attention to the difference between academics and students in using the Brief;

> A few weeks after the project begins, I know the brief by heart whether I carry it with me or not. They all have IPADs and they show the brief on it ... I mean, they do not carry anything with them anymore. Junior students have small notebooks with them but generally, they have IPADs or their computers with them. They draw there, write it there, and the habit of using paper and pen has reduced.

One complain revealed during the interviews was about whether students read the printed Design Brief design briefs or not. Yet, printed briefs were found weak. One of the academicians questioned this situation, in which the expectations were not being met;

> The final jury was last week. One of the most asked questions is whether the student read what they were supposed to in the brief. Did you see this explanation in the brief? Didn't you? etc.

Another scholar shares an example to show how students make up a fictitious expectation about the project without reading the brief;

> We said that we did not want prototypes. The brief was taken out and checked. We did not want prototypes, but there was such a perception as if we had asked for prototypes, which means that they did not read it.

It is seen that academics are of the strong opinion that students do not care about this document or give it the necessary attention. Although the views of academicians about students' usage habits are generally negative, a student-centered approach has been also observed in the preparation process of the document. One of the elements academicians paid most attention to during the preparatory process of the design description document was expressed as to trigger creativity of the students and sustain their motivation. One of the academics expressed his/her proposal for the use of different media and tools in the delivery of the project subject as follows;

> Brief may be given to the student as a film. It may be the responsibility of the student to solve the puzzle, but the creative brief is a lot of fun. For example, I could just give a speech as a brief.

Another scholar similarly expressed preference for a student-centered approach in the design of the Design Brief;

> It should take the attention of the students, also shouldn't fall into repetition... it should be something that encourages creativity. Something that can bring out interesting ideas.

The results of the interviews show that academicians use the Design Brief as a learning management tool to remind the students of the phases of the design process in the working schedule and their position in the process and to remind students of the expectations of the course. Another form of use of it is to keep the student within the boundaries of the subjects related to the management of the process. One of the academicians stated the importance of the function of the design description document associated with the study schedule;

> At the studio, every week, I try to look at the timetable in order to be informed about what we expect from the students and in which phase we should be. So, in fact, it becomes a plan for us also.

Another scholar explained the role of the Design Brief as a communication tool to understand and meet the expectations correctly, with the following;

> We state that in the final you will submit the things that are expected in the brief, and sometimes we copy that part of the document and remind them via e-mail if they do not look at it. We remind them orally again at the studio by looking at the brief.

At this point, even if the Design Brief is shared in print or digital form, it is seen that some parts of the Brief are shared again among the students in different mediums at different points of the process. It appears from the statements of academicians about the use of the Design Brief that they mostly use it to clarify the subjects and as reminders to the class.

Findings obtained from the quantitative research

Under the light of the findings of the interviews, a questionnaire was formulated on two main themes. The first of these was to make an observation (sharing, reaching it in the process and displaying) on the environment in which the Design Brief was placed/used in the current practices, and the second was to understand the factors that featured in the use of the Design Brief for usage practices. In order to question the medium used during the first meeting with the students in the current usage practice of the Design Brief, the academicians were asked how they shared the project definition with the students. A multiple-choice question type was used in the questionnaire (See Table 2)

Table 2.
Media and Tools Used by Academicians to Share the Subject of Projects with Students

Sharing Project Theme	Frequency	Percent
I share the theme verbally	20	45.5
I share the theme as written/print document	40	90.9
I write the theme on the board in the studio	5	11.4
I send the theme in an e-mail	16	36.4

It seems that one of the first preferences of academicians is to share this document in print (Table 2). When we look at the preferred mediums for sharing the Design Brief, it can be seen that sharing it verbally or by email is usually combined with sharing it in print. It seems that in accordance from the findings of the interviews, more than one medium is used at the same time for the sharing of the Design Brief. A total of only 10 academicians indicated the single preference of sharing this document in print.

Following from this, the habit among academicians of keeping the Design Brief with them in printed form was measured by the Likert-type question. Parallel to the findings of the interviews, the rate of carrying the Design Description Document in printed medium was very high (M = 3.80, SD = 1.25). An extra inquiry was made to determine the media used to view and access the document after the sharing of the Design Brief. For this question, the single choice question type was used.

Table 3.
Media and Tools Used by Academicians in Accessing and Displaying the Design Brief

How to Access Design Brief	Frequency	Percent
I look at the hard copy I carry with me	17	38.6
I look at the digital copy in my mail	10	22.7
I look at a photo of the brief on my mobile phone	5	11.4
I look at the copy in the social media account of the course	3	6.8
I request it from a colleague	3	6.8
I look at the copy that is installed on the student information system	2	4.5
I look at the copy hanging in the studio	2	4.5
I look at the digital copy stored on my computer	1	2.3
I look at the copy in Dropbox	1	2.3
Total	44	100.0

17 of the 44 academicians who responded to the questionnaire said that they first accessed the document as hard copies (Table 3). The second preference was to reach the document via their emails, while the third most popular option was to view a picture of it on their mobile phones. While the printed copy is seen as a distinct habit, the other two preferences reveal that the Design Brief is often displayed via digital media. Both options show that the presence of a copy of the brief in a medium which can be accessed at any time is an important factor for those questioned. In short, although the rate of academicians carrying the Design Brief with them in print form was very high, it was also found that digital media were used as much as printed to access the document.

Within the framework of the findings from the qualitative part of the study, it can be understood that the sharing of the project topic and the process of the academicians are not limited to the contents of the Design Brief. Accordingly, academicians were questioned about the mediums used to inform students and share the expectations or demands of the project in the process. For this question, the single choice question type was used.

Table 4.
Medium and Tools Used for Communication in the Studio

Mediums for sharing predetermined expectations/requests	Frequency	Percent
Through a social media account for the course	12	27.3
Through the mail group of the course	6	13.6
Through the student information system	2	4.5
Verbally	12	27.3
In writing	6	13.6
Total	44	100.0

It was found that academicians mainly prefer social media accounts and verbal communication to share the brief (See Table 4). This result is consistent with the findings in the verbal explanation of the brief theme. Sharing the document through a social media account is in line with the findings in the

qualitative part of the research under the theme of sharing the Design Brief in digital medium (expressed in the context of the practice of sharing the brief with students).

Two basic questions were prepared to demonstrate the effectiveness of the Design Brief in the process and its use rate. The first one aimed to understand the importance of the document in the process, and the second one was to determine the usage frequency of the document. The responses showed that the academicians consider the Design Brief very important (M = 4.48, SD = 0.73); and that they use this document frequently (M = 3,55, SD = 1,022). Only one of the academics stated that he/she never used such a tool. According to these findings, we can say that the Design Brief is considered to be a very important tool in the process.

To address the academics' views on the Design Brief in a broader perspective, they were required to give three keywords to express what this tool means to them. Responses were transcribed directly, and then synonymous words were combined under a single heading (e.g. technique-method, working-calendar-work program, etc.). The ranking of the words used by the academicians according to their frequency of use is given in Figure 2. According to this analysis, the view that the Design Brief expresses a process has become predominant. When describing the document's function of evaluating the scope of the project, it appears that this function is a key component in describing the Design Brief. The definition of the Brief as a guide/roadmap is considered important for expressing the role of this tool in the process. The fact that academicians see the Design Brief as a study schedule/program indicates that this document is considered an effective tool in process management.
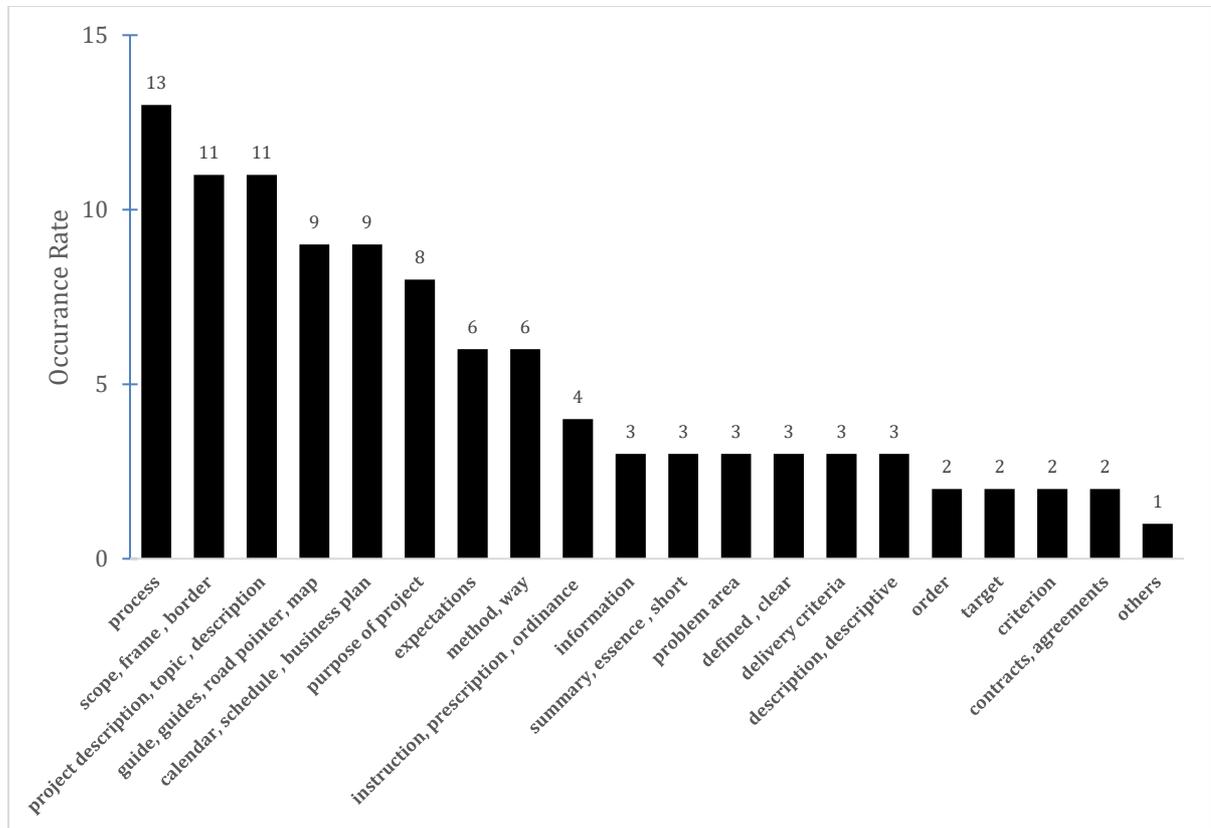
Figure 2. *Frequency of words used by academicians to define the Design Brief.*

This finding seems to be consistent with the theme of the use of the Design Brief as a learning management tool stated by academics during the interviews. This document creates a context of compromise for two user parties (students and academics), including the steps to follow and the expectations of those steps. The Design Brief appears to be actively used to provide a consensus throughout the process.

Further to the determination of habits involved in the use of the Brief as a whole, an attempt was made to understand the frequency of use of the components constituting the Brief. The components of the brief were determined by the results of the content analysis study conducted by Engin Kapkin for the design briefs (Kapkın, 2010). In this context, academics were asked which elements of the brief were most frequently recalled. For this question, a multi-choice question type was used. The sections of the brief most frequently used by academicians in the process are given in Table 5. Accordingly, the Scope of the Project, the Project Process Schedule (Working Schedule), Delivery Terms of the project, and the Aim of the Project Problem headings stand out as fundamental elements that the academicians want to be sure that they are understood correctly.

Table 5.
Frequencies of the Usage of Inividual Components of the Design Brief by Academicians

The components in the Brief	Frequency	Percent
Project scope	31	70.5
Project Process Calendar (Work Calendar)	27	61.4
Procurement Delivery Terms	27	61.4
Purpose of Project Problem	26	59.1
Evaluation Criteria	22	50
Project Start and End Date	17	38.6
A Methodological Approach to the Project Process	13	29.5
Technical Information on Project Problem	6	13.6
Name of Project Problem	5	11.4
Resources Related to the Project Problem	5	11.4
Images Related to Project Problem	3	6.8

Conclusion

For this study, "Design Studio" courses are taken to be an important example of project-based learning as a basic model. It is clearly the case that the Design Brief has been used as an important tool in the current learning environments of Industrial Design education as a systematic process. Within the framework of the findings of the study, it can be seen that the Design Brief is used by academicians as a learning management tool during this project process. However, the study also reveals that academicians use a variety of different media and tools other than printed documents in the process of sharing the expectations of, and information about, the project with the students. In addition to the content that is shared in printed format, it has been observed that sharing through social media or mail can be supplementary to the written document.

It can be said that the use of different media in the preparation, sharing, and display of the Design Brief reduces the effectiveness of the tool in the learning environment. While expressing the problems arising from the use of the document, academicians frequently defined them in connection with student use of it, which is complicated by the variety of media through which students access it.

Critical views of the academicians on the way students use the brief are often expressed in terms of their (lack of) reading of the printed brief and of their (not) having/carrying it with them. This finding

is in line with studies in the literature that reveal the negative attitudes of new generation learners towards written and printed media used in traditional educational settings (Pedró, 2006; Black, 2009; Prensky, 2001).

While it is seen from the interviews undertaken with the academicians that the student-centered approach is taken as the basis for the preparation of this tool, in order to increase the effectiveness of a brief in the process, it is necessary to take into consideration the attitudes and opinions of the students towards the Design Brief as a learning tool. Although the Design Brief contains expectations and information about a particular project, it is understood that the informational communications of academicians with students are not limited to this document. It appears "Design Brief" have been used not as a whole but some parts of the "brief" have been more commonly used at different phases of the project process.

It is understood that the academicians see the differences in the process of the students as usual so the design process should not be regarded as a fixed process which consists of a sequence of fixed steps.. The research shows that the first shared version of the Design Brief stands as a tool for mass communication and a sense of collective contract for all those involved in the learning process. While each of the students in the studio has his/her unique design process some expectations are therefore difficult to be met due to depending on the current fixed structure of the briefs, at points where they may actually exhibit more flexibility. It is believed that a change to be made in the medium of Design Briefs will help turn the document into a new and motivating tool for both parts; academicians and students, as well as in the preparation and its use in the process.

One of the key elements revealed by this study is the need to reconstruct some components of the Design Brief in such a way as to accompany the dynamic structure of the process, rather than remaining constant. This requirement runs in tandem with the expectations of new generation learners with regard to active learning environments (Cameron, 2005). The fact that the Design Brief is considered an important part of the design process suggests that this tool needs to be reconsidered within the framework of the expectations of the new generation of design students. There is a need for research to understand the needs, expectations and students' view in order to determine prior criteria for a dynamic document, not even a document but a tool that will take place in a new medium.

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