Comparative Analysis Of Master Of Industrial Design Education In Turkey

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Abstract
This research focused on the masters degree programme in industrial design (ID), which is research and practice oriented in the light of current themes and design principles. It argued that a masters degree in industrial design would help graduates specialise in the related field and improve their skills. Therefore, institutional and academic structures of the seven programmes offering masters degrees' in ID in Turkey were analysed in this study. In addition to this, two survey studies were carried out among the teaching staff in order to find out the current status of the programmes in terms of their strengths and weaknesses. As a result of the field study, problems concerning the academic staff of masters programmes came into prominence as the most important weaknesses despite positive progress witnessed in the increasing number of programmes. In addition, the required improvements of Higher Education Council criteria for the discipline were also found to be a critical situation for the future of programmes.

Key words
industrial design education, curriculum, masters degree programme, comparative analysis, Turkey

1 Introduction

Industrial design (ID), is an integrated profession which covers a wide range, including engineering (technology, techniques, material and processing), ergonomics (operation, safety, usability, sensation), business (marketing, management, planning, corporate identity), aesthetics (form, visualisation, style), and can even involve social, environmental, and cultural issues (Yang, et al., 2005; 155).

Industrial design, as it incorporates interdisciplinary characteristics, plays a crucial role in sustaining and reforming nations, societies, and industries. From this standpoint, it can be said that particular characteristics of ID are mostly associated with or the result of the ID education, which is a more complicated phenomenon in the countries like Turkey where industry is still under development than the industrialised countries in Europe and North America.

Design education is one of the areas in which one can observe the convergence of concepts, methods, and technologies originating from the centre, with the particularities of each peripheral country like Turkey where local dynamics can be crucially important (Er, 2001; 1).

Interrelations between industry and design education recently became an important issue in Turkey. It was in the mid 1990s, particularly following the emergence of a liberal economy, customs union, laws, and legislations concerning intellectual property rights in Turkey that educational institutions began to establish real ties with industry. Industrial designers in Turkey are now employed in large, medium, and small-sized enterprises. Some of them run their own design consultancy firms developing projects for various industries. Thus, it is important to provide ID education based on the true local needs of the Turkish industry, as well as the latest developments and trends in the world so as to bring innovation through design, and be able to compete with many local and foreign firms (Evyapan, et al., 2005; 138).

Incorporating the notion of ID into a firm undoubtedly calls for a strategic plan and series of actions to be taken. For instance, managers, marketing people and engineers should be equipped with the notion of ID, and designers' qualifications should be improved through education. As Asatekin et al. point out, "such a dual action maintains interactivity between distinct phases of the product development process such as design, production, and marketing and improves the communication link between the team members in a design unit and between different units in an organisation" (Asatekin, et al., 1997, 3).

As argued in published literature on design education, there seems to be a serious gap between the missions of ID programmes and the needs of the industry from a general perspective. Since design education seems reluctant to move beyond basic aesthetics and form-giving, theory-practice balance became a crucial issue for curriculum development in this discipline (Kolko, 2004; 1). Involvement of practice into design education is also related with interrelations with industry. Although various applications concerning relations with industry in education (Boyarski, 1998; Çırpanlı & Er, 2006; Erkarslan, 2007; Evyapan et al., 2005) have been widely discussed in literature, the problem still remains as one of the actual fundamental issues in design education. In line with industry's demands, a higher level of ID educational programme, which includes graduates from both ID and interdisciplinary backgrounds, is necessary since it would

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provide graduates with higher qualifications which help them respond to the emerging requirements in the industry.

The aims of the study are:
- Primarily to create a source that may guide the institutions/universities that will develop a masters programme on ID.
- To provide a perspective both for self-evaluation to existing programmes and for further studies in the field.
- To create a discussion topic in its own right at further design meetings and researches in Turkey.

Thus, this study has three main routes:
1. A situation analysis will be conducted in order to point out the different and similar aspects of the current education system embraced by the masters programmes in ID in Turkey. The comparative study will be conducted on the topics of curricula, missions and visions, institutional structures, academic staff, students and masters theses.
2. A two-phased survey study will be carried out to investigate the ways in which academics perceive the masters study in ID and the way it should be examined in the future.
3. The results obtained from the surveys and situation analysis will be gathered, and a comparative evaluation for further studies will be conducted in accordance with those results.

1.1 Boundaries of the study

In the line with the information gathered from the situation analysis, masters degrees in ID are offered in Anadolu University (AU), Istanbul Technical University (ITU), Izmir Institute of Technology (IYTE), Marmara University (MU), Middle East Technical University (METU), and Mimar Sinan Fine Art University (MSFAU).

In addition, in Izmir University of Economics (IUE), there is a masters degree programme in Design Studies conducted under the institute of social sciences. This programme differs from other ID masters degree programmes by its educational structure (the teaching staff of this programme covers all design disciplines). Yet, this programme is also included in this study because there is an undergraduate programme in ID in the university and the education given constitutes the design disciplines. The programme aims to provide interaction between the design disciplines, generate creative results from the interactions between them, enable students to deal with 'design' with a holistic approach, and help them become acquainted with different topics, views, size, scope and materials.

There is another masters degree programme in 'Production and Design Methods' in Gebze Institute of Technology, which is run by the faculty of engineering and industrial technology education. The graduate programme in Gazi University, on the other hand, is run by the faculty of industrial arts education. However, both programmes are considered out of the scope of the study because they are mostly integrated with the discipline of engineering rather than design weighted in terms of both their institutional and academic structure. This might be regarded as a limitation of the study. Selection of the academics to be consulted about their opinions is one of the boundaries of this study since the overall number of academic staff is too limited. For this reason the selection was made among the teaching staff who either performed administrative duties or published research on ID education.

1.2 Research methodology

Qualitative research on the masters degree in ID education in Turkey was carried out through the following steps:
1. Deciding on qualitative research (defining a research problem and selecting case studies, literature reviews of the study, type and use of qualitative research, the survey approach to research the stated problems).
2. Composing qualitative data collection (conducting effective interviews, being a careful observer, and bringing statistical data from documents).
3. Analysing and reporting survey study data (to analyse qualitative data, data analysis towards reliability and ethics in the survey study and writing the survey study report).
4. A comparative analysis of all the data obtained from the study.

Consequently, the structure of the methodology, being a crucial part of the study, is determined and a methodological chart is shown in Figure 1.

1.3 Design of the field study

As the relevant literature on "masters degree education in ID in Turkey" is limited, Creswell (1994) suggests, "One of the chief reasons for conducting a qualitative study is that the study is exploratory" and he also highlights the point that "not much has been written about the topic or population being studied, and the researcher seeks to listen to informants and to build a picture based on their ideas". In accordance with this purpose, a two-phased survey study was carried out in order to achieve the objectives of the study. This study was conducted nationwide with academics who work as lecturers in ID masters programmes. All phases of the field study were realised by either emails or face-to-face interviews.

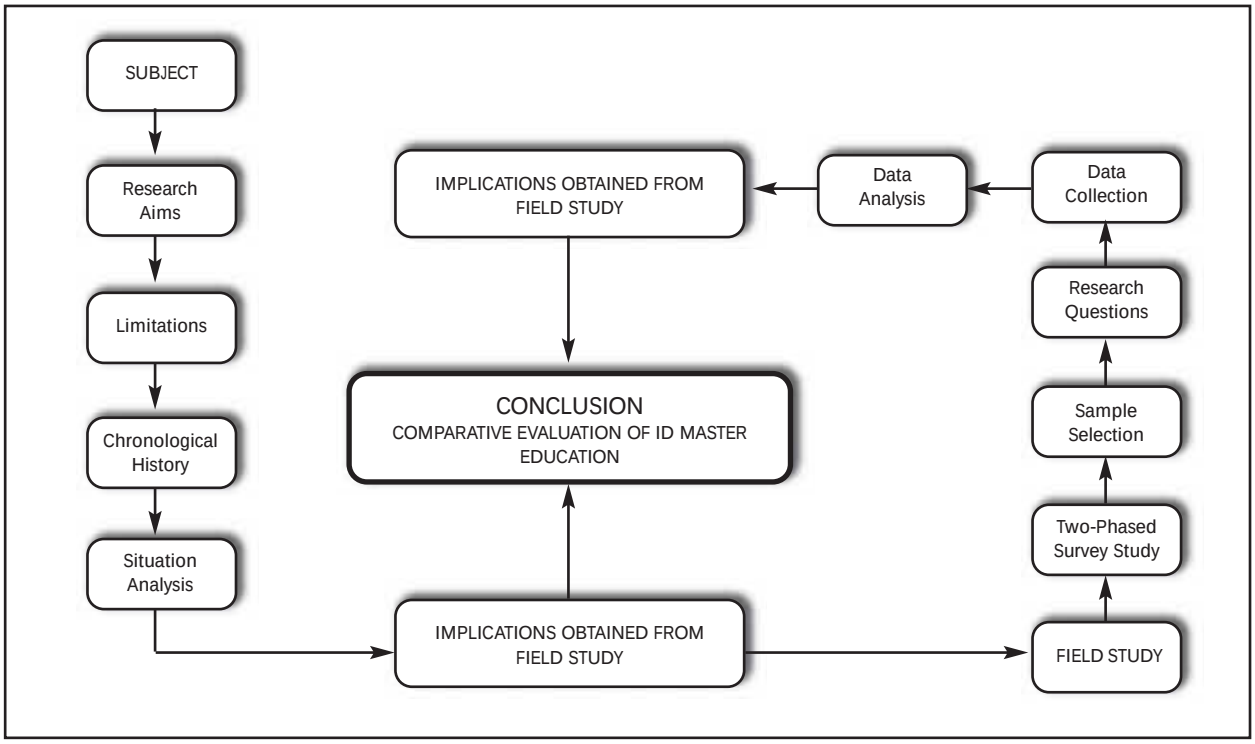

Figure 1. Methodological structure of the study.

The questions in the first survey included information about the education and research backgrounds of the respondents as well as their opinions and suggestions about the masters degree education in ID at nationwide.

On the other hand, the second survey served as a sequel to the first one and aimed to determine the common views of respondents and it focused on the assessment of their attitudes concerning the subject matter. The attitude scale called 'Likert' that was used in the survey is one that measures attitudes in the easiest and the most direct way (Maurer & Andrews, 2000). This kind of scale helps researchers to determine the ideas of respondents as they help figure out the respondents' level of agreement to a statement. In this study, what the respondents were asked to do was to rate the statements on a 5 to 1 (absolutely agree to absolutely disagree) response scale. Below is the scale:
(5): Absolutely Agree
(4): Agree
(3): Not Sure
(2): Disagree
(1): Absolutely Disagree

This part of the survey measured the respondents' level of agreement concerning the fifty-six statements obtained from the answers given by the respondents of the first survey according to the Likert scale. These fifty-six statements are divided into four sub-categories; namely, the advantages of masters study over undergraduate study in ID, the weaknesses of masters programmes in ID in Turkey, the strengths of the programmes, and finally, their suggestions concerning the future of the programmes. The respondents were also asked to make additional comments/suggestions about the programme if they had any.

1.4 Data analysis

Since the first section of the survey included demographic research, the results were evaluated by comparative analysis through illustrations with tables. Most of the answered surveys were conducted by interviews. In addition, again in the second section, the second (comparison of the past and present situations of the masters education) and third (strong and weak aspects of it) questions were gathered and then, the results were evaluated under the categories of 'weaknesses' and 'strengths'. Collected data were analysed by using descriptive statistics: means, standard deviations, medians, and modes.

1.5 Structure of the research

Academic education of designers must be in such fields as engineering, materials, construction, computing, computer

aided design, physics, production technologies and computer aided manufacturing, etc.), design (design methods and theories, design management, ergonomics, creativity, design research, designing projects, graphics design, communication techniques, etc.), product management (economics, finance, operations research, management, advertisement and marketing research, quality control, social psychology, etc.) (Bayazıt, 1994; 203).

Masters degree education in ID, the current research area has an approximately a 25-year history. However, these programmes are mostly perceived as a compulsory stage for academics to progress or a haven for the new alumni that could not find their place in the industry. In fact, the masters degree education is potentially in an advantageous position for the future even though it is less comprehensive than undergraduate education. Additionally, masters degree programmes in ID are more flexible than undergraduate ones as they are comprised of more methods and have a wider scope. For that reason, they are more sensitive to public/financial needs and professional development (Er, 1998; 100).

In this analysis, missions and visions, curricula and course contents, teaching staff and students enrolled in these masters degree programmes were compared. The data for this section was obtained mostly from the official websites of each university. The universities are listed according to the foundation dates of their masters degree programmes.

2 Institutional structures

In order to compare the institutional structures, the existing situations of the masters degree programmes through the information provided from their official websites are given in Table 1 (AU 2008. http://www.anadolu.edu.tr/en.; ITU 2008. http://www.itu.edu.tr/en.; IUE 2008. http://www.iue.edu.tr.; IYTE 2008. http://www.iyte.edu.tr.; METU 2008. http://www.metu.edu.tr; MSFAU 2008. http://www.msgsu.edu.tr.; MU 2008. http://www.marmara.edu.tr/en.)

Of the seven universities offering a Masters degree in Turkey, METU, ITU, IYTE, MSFAU, and AU provide a M.Sc. education in their own science-related departments within the body of the graduate school of natural and applied sciences. On the other hand, MU masters degree programme was first created within the body of the 'graduate school of social sciences,' but afterwards, due to the foundation of the graduate school of fine arts in 1994, the programme continued education under the art division of ID. Conversely, the masters programme in Design Studies in IUE is as a separate division under the graduate school of social sciences.

Nevertheless, these universities fall into different categories in terms of the faculties they are located in. The programmes in MSFAU, ITU, IYTE, and METU are in the faculty of architecture, and the programme in MU is in the faculty of fine arts. On the other hand, the programme in AU is located in the school of industrial arts. At this point, it is worth mentioning that IUE holds a much different educational structure. This programme aims to gather design disciplines under the roof of faculty of fine arts and design, which offers a common ground for various design disciplines embracing an interdisciplinary academic framework.

2.1 Curricula and course contents

In order to define the educational philosophy of the ID masters degree programmes in a theoretical-practical context, one has to examine their curricula and courses.

Masters degree programmes	Faculty/school	Graduate school (Institute)	Graduate degree
MSFU	Architecture	Natural and Applied Sciences	Master of Science
MU	Fine Arts	Fine Arts	Master of Arts
ITU	Architecture	Engineering and Sciences	Master of Science
IYTE	Architecture	Engineering and Sciences	Master of Science
METU	Architecture	Engineering and Sciences	Master of Science
AU	School of Industrial Arts	Engineering and Sciences	Master of Science
IUE	Fine Arts and Design	Social Sciences	Master of Arts

Table 1. Situation analysis of masters degree programmes in ID based on institutional structures

"However, every programme has its own aim, objective, rationale and market. Therefore, it can be said that no programme is better than the other." (Balcıoğlu, 1998; 15) Credit weightings, interdisciplinary tendencies, the curricula and course contents of the masters degree programmes are analysed in this section with the aim of comparing their educational philosophies. The below table summarises curriculum analysis without detailing the list of the courses.

The programme in MSFAU consisted of at least ten courses with 21 credits and non-credit seminars, a thesis progress report and a thesis. The programme's Project I and II core courses were practice and research based that aimed to achieve 'advanced product design' and 'project planning' for different types of industrial sectors. On the other hand, when the programme's elective courses and course contents were examined, it could be seen that the programme focused on industry and manufacturing oriented theoretical education. In this regard, some of the main topics covered in the programme were user-product interaction, production techniques, cultural and socio-economic influences, materials, management, technology, and legal status. It could be said that the courses entitled 'Design Semiotics and Product Semantics', 'Ergonomics', 'Anthropometrics', 'Communicational Models in Design', 'Measurements of Interface Design', and 'Interface Design Concepts in the Human-Machine Relation' concentrated on

Universities	Philosophy of Education based on Curricula	Requirements for Graduation	Core Courses			Elective Courses		
			Number of Credits	T	P	Number of Credits	T	P
MSFAU	Concentrated at human-product relation, production, industry, and social centered design research education	10 Courses/ 21 Credits/	4 Credits		✔	17 Credits	✔	
MU	Combines the technique and art dependent theoretical education with practical aspects of the design discipline	12 Courses/ 28 Credits/	8 Credits	✔	✔	12 Credits	✔	
			8 Credits	✔				
ITU	Has practice within its body; it is structured for an academic design research education	8 Courses/ 24 Credits/	12 Credits	✔		12 Credits	✔	
IYTE	Offering a practice and interdisciplinary aimed education with the topics of technology and innovation, the programme has a structure both on the research and practice side of design	7 Courses/ 21 Credits	16 Credits	✔	✔	Minimum 2 Credits	✔	✔
			3 Credits	✔				
METU	Theoretical context and directed for research and development in an interdisciplinary area. Besides, it provides a specialisation area on usability and human factors and interaction design	7 Courses/ 21 Credits	3 Credits	✔		12 Credits	✔	✔
			6 Credits	✔	✔			
AU	Practice based computer aided presentation and heavily technical, theoretical education on industry	7 Courses/ 21 Credits	9 Credits	✔		9 Credits	✔	✔
			3 Credits	✔	✔			
IUE	Practice and theory focused that include theoretical education on research and presentation techniques with an interdisciplinary perspective, in the same direction as the course objectives	9 Courses/ 27 Credits	18 Credits	✔		18 Credits	✔	✔

Table 2. Comparative analysis of the curricula in different universities. (T) indicates theory, (P) indicates practice

the human role of design and user-product interaction. Additionally, courses such as Industrial Affairs, Industrial Systems, Material Selection, and Manufacturing Physics focused on the technical features of industry and production.

When the courses were examined in terms of the distribution of credits, it could be said that the 'Design Theories' course was the heaviest one. This course was followed by courses entitled 'Socio-Economic Influences in Industrial Design' and 'Socioeconomics in Industrial Design' in terms of their heavy load. These courses were research-based and they concentrated on the social aspects of the design discipline. Another important course was the one entitled 'Intellectual Property Rights and Design Property Rights,' which looked at the judicial aspects of the discipline.

Finally, when both core and elective courses and their contents were examined, it could be observed that the programme is a mixture of practice and theory that was based on research and presentation techniques with an interdisciplinary perspective, which corresponded to the course objectives. When all courses and course contents were analysed, it could be obviously seen that the programme concentrated on production, industry, and the social aspects of design research.

The programme in MU consisted of at least 12 courses (two cores, ten elective) with 28 credits and non-credit seminar and a thesis. If the core and must-elective courses of the programme were considered together, it could be said that core courses included application dependent upon research, and the courses entitled 'Industrial Design I, II', and compulsory electives ('Research Methods', 'Design Theory I-II', and 'Production Organisation Management' focused on the theoretical evaluation of topics like classification and examination of research methods, theories, and management in design.

With regard to the elective courses, it could be said that art, history of art, and management were the leading concepts. On the other hand, in terms of the structure of the programme, gathering art and product design under a single roof permitted the examination of the abstract aspects of design. In addition, by means of elective 'Brand Management' and 'Design Law' courses, branding methods and judicial rights were analysed within the scope of design. When all courses were examined in terms of the distribution of credits, it could be seen that the courses apart from entitled 'Industrial Design I,' 'Industrial Design II' that were four-credit courses, were theory-based. Therefore, this programme embodied an educational structure that combined the technique and art dependent theoretical education with practical aspects of the design discipline.

The masters programme in ITU constituted eight courses (four cores, four elective) with at least 24 credits and compulsory non-credit courses like a seminar and a thesis. When the core and elective courses of this programme were examined, it could be seen that all courses were based on theoretical knowledge, and they were the same in terms of the heavy workload.

In this respect, 'Statistics in Design Research' was about statistical analysis of the data gathered from area studies in design research, whereas 'Design Research Methods' dealt with taxonomy and the analysis of methods in design research and 'Directed Studies in Design' constituted topics like structure and the analysis of new public, economic and technological developments within the concept of design. Additionally, the core course entitled 'Future Directions in Design', which examined future themes in design with responsibility, was also included in the programme.

On the other hand, when elective courses were examined with regard to their course contents, it could be pointed out that there were courses such as 'Product Materials and Technology', 'Applications of 3 Dimensional Animation in ID' and 'Lighting Luminaires Design and Production Techniques' which were mostly practice-based but had a theory-based identity.

In addition, among the electives, the course entitled 'Advanced Design Project I-II' focused on practice and research. Even though such courses were not opened in every semester; they aimed for advanced design projects, determined due to the demand within the frame of university-industry collaboration. They were carried out through interdisciplinary teamwork.

Nevertheless, when the load, position, and depth of the courses were considered together, it could be observed that this programme had practice within its body and that it was designed for academic research.

The programme in IYTE consisted of at least seven courses with 21 credits and a non-credit seminar, a thesis, special studies and special topics studies.

The most important point that needed to be highlighted when assessing the curriculum of the programme was that the curriculum had not been updated since the 2003-2004 academic year, however upgrading was offered in

the fall semester 2009. So, it was important to underline that during the period that the survey was carried out IYTE had not yet upgraded its curriculum. With regard to this, there were two practice focused courses and one theory focused course among the core courses of the masters degree programme. In this regard, 'ID Studio I-II' was a practice and theory based core course dealing with a project plan and an organisation through interdisciplinary teamwork for product design, project implementations and preparation of prototypes. In addition, 'Research Methods' was a core course that included topics like 'definition and implementation of research methods' in the field of design. These three courses constituted the core courses with credit.

This programme's elective courses included technology and industry focusing on artistic, technical, and theoretical education based topics. In addition, in terms of the distribution of credits, of the eighty-four-credit elective courses, eight courses that constituted thirty-four credits were practice-based. These courses (focusing on topics like cinema, sustainability, photography, innovation, and materials knowledge) which had an interdisciplinary structure focused on the research aspects of design within the concept of technology and practice. In addition, the courses that focused on the topics of cinema, art, aesthetics, visual media and management revealed that the programme offered a wide variety of courses. As a result, offering a practice and interdisciplinary aimed education through the topics of technology and innovation, the masters degree programme in IYTE is based on both research and practice.

In METU, the programme consisted of at least seven (two-core) courses with 24 credits and non-credit seminar and a thesis. When core courses and their contents were examined, it could be observed that they were mostly theory based. In this respect, the course entitled 'Research Methods in ID I', included the structure of interdisciplinary academic research. On the other hand, 'Advanced Project Development' was an application oriented course that included practice and theoretical information intended for determining new methods, approaches, and problem areas in the interdisciplinary area of industrial design.

The programme's elective course load was again heavily theory focused and concentrated on the conceptual evaluation of topics like 'cultural cases', 'ergonomics data', 'product marketing strategies', 'national and international regulations that designers must obey', 'history of design', 'conventional and strategic design cases' and 'actual themes'. In addition, the elective courses like 'Media and Design' and 'Designing Interactions' included practice hours, and dealt with the principles and theories of communication. Moreover, the course entitled 'Designing Interactions' dealt with concepts in relation to various interaction domains.

Yet, on the other hand, elective courses entitled 'Designing for the Disabled', 'Material Culture', and 'Consumption in Everyday Life and Methods', 'Applications of Usability Testing' and 'User Centred Design' dealt with application-based theoretical topics. 'Methods', 'Applications of Usability Testing', and 'User Centred Design' included the methods and application of the studies in the usability lab, which was built within METU.

Finally, if the core and elective courses in the masters programme in METU were analysed together, it could be pointed out that the programme concentrated on a theoretical context and aimed for research and development in an interdisciplinary area. In addition, it provided specialisation areas through the usability and human factors lab and also by offering an international joint masters programme named 'Interaction Design' within the body of its department.

The non-thesis masters programme in AU consisted of seven compulsory courses with credit (four must, three elective) and in addition a seminar course and a thesis. When the course contents were examined, it could be seen that ID I and II were designed within a theoretical context focusing on practice. The courses constituted the combination of the transformation of theory to practice like scale, function, aesthetics and main design methods and processes like project planning, use of technology and product costs.

'Brand and Marketing Processes in Design' was a compulsory course which included the examination of brand identity and market creation processes of the designed products. In addition, 'New Approaches to Design' dealt with recent themes in design and discussed the use of new trends in product design. It was also a theory based course but involves interaction with practice.

The elective courses of this programme could be analysed in two groups. The courses of the first group were theory based. The course entitled 'Scientific Research Planning and Appreciation' studied the scientific research aspect of design, and 'Design Management' included topics like 'defining design policies', 'comparing management processes in connection with production systems and cultures'. The courses in the other group, on the other hand, were practice-based and they focused on 'product development', 'advanced methods in production',

'computer aided design' and 'presentation techniques'. When the curricula and the contents were analysed, it could be concluded that the programme focused on practice based computer aided presentation and dominantly technical, theoretical learning on industry.

The design studies masters degree programme in IUE consisted of at least nine courses (six cores, three elective) with 27 credits, a non-credit workshop, a seminar and a thesis. The programme had two options for the thesis; project based or theory based. The programme provided education within the faculty of fine arts and design.

When the core courses and their contents were examined, it could be pointed out that the programme was based on practice and practice-based theory. In this context, 'Design Research Techniques' included the notion of research and methods. 'Seminar I-II' enabled students to establish theoretical foundations for research findings and to present them in a systematic frame. In 'Workshop,' students gave presentations on certain topics and the course entitled 'Design Represent Theories' included theoretical frames that looked into findings of research. These were theory based core courses. In addition, 'Current Topics in Art and Design', being a theory-based course, dealt with topics like 'new art and design themes' and 'forming design identity'.

Additionally, 'Research for Thesis', which included the thesis' research extent, scope, and kind, exhibited an exception by providing options (project based or theory based) for thesis preparation and included both theoretical and practice-based theoretical learning. When the programme's elective courses were examined, it could be seen that this programme was also closely dependent on theory just like core courses. In addition, there were practice focused studio studies for those who would choose a project based thesis study.

Elective courses that could be classified as theory based were 'Spatial Practices', 'Semiotics in Design', 'Conceptual Geographies', 'Design Education Planning', and 'Contemporary Education Problems in Design'. These courses focused on 'theoretical education in body/place/socio-cultural context relationships in design', 'evolution rules', 'semiotic approaches', 'nineteenth century art philosophy', and 'education. Additionally, in the course entitled "Art, Design and City", theoretical knowledge on art and design in public spaces was provided through discussions on the urban aspects of design.

In addition, 'Graphic Design Studio', 'Typographic Design Studio', 'Commercial Design Studio', 'Trend Catalogue Project', and 'Fashion Project' were elective courses that provided practical and theoretical education focused on practice. In addition, courses entitled 'Fashion Studies' and 'Portfolio Design' were elective courses that dealt with the definition of communication and transformation of theory into practice.

Finally, when both core and elective courses and their contents were examined, it could be observed that the programme was practice and theory based that dealt with theoretical education based on research and presentation techniques with an interdisciplinary perspective, which corresponded to the course objectives.

In terms of curricula analysis, MU and IUE have the most graduation requirements regarding the credit weightings. This is caused by the institute of Fine Arts and Social Sciences respectively.

3 Results and implications obtained from the survey studies

This research sought the academics' opinions about the masters degree education in ID through two survey studies. The first survey was conducted with twelve, and the second one with 16 academics, whose universities offer a masters degree in the field of ID. It is important to mention that nine academics, among the first group of respondents, took part in second survey.

The results and implications obtained from the two surveys will be presented under the topics of 'Demographical Structures of Respondents and the Programmes', 'Comparative Analysis of Masters and Bachelor's Degrees', 'Analysis of the Educational System in the Masters Degree Programmes'.

The researcher carried out two applied surveys in order to investigate the perceptions and comments of the selected academic staff of the universities in Turkey offering a masters degree in industrial design. In this regard, the selected academics who took part in the survey study answered six major research questions in the survey:

- What are the education backgrounds and workplaces of the respondents?
- What are their criteria for admitting students to the programme and their thoughts about the evaluation of graduate students?
- What is the educational philosophy and specialty of their programmes?

Academic Staff	MSFAU	MU	ITU	IYTE	METU	AU	IUE
Prof	1	1	2	0	0	0	0
Assoc Prof	0	1	1	0	2	0	0
Assist Prof	0	0	0	0	1	1	1
Inst	0	0	0	1	0	0	0

Table 3. The number of respondents concerning their academic titles that took part in the first survey

- What are their views about the benefits of having a masters degree in industrial design?
- What do they think about the weaknesses and strengths of the current education system?

4 Demographical structures of the respondents and the programmes

The demographic information of the respondents and the masters degree programmes was analysed in order to highlight the respondents" current situation and how the masters degree programmes are perceived from their point of view.

4.1 Backgrounds of respondent academics

This section gives some information regarding respondents' academic backgrounds, the administrative positions they hold or they have held, and whether they have an academic publication in the field of ID education.

First survey study: One academic from MSFAU, two from MU, three from ITU, one from IYTE, three from METU, one from AU and one from IUE took part out of a total number of twelve academics. Table 3 shows the distribution of the respondents according to their academic titles.

Five of the twelve respondents perform administrative duties. One of these five respondents performs three administrative duties; namely, as the head of division, head of department and a double major co-ordinator. Three of them are heads of their departments. The other respondent is in the faculty administration committee. There are also some respondents who no longer have administrative duties. One of the seven respondents performed as the head of department between 2004 and 2007, and another performed as the head of division between 1993 and 2006 and the head of department between 1995 and 2006.

Table 4 gives some information concerning respondents' bachelors, masters and PhD/Proficiency in Arts degrees.

As it can be seen from Table 4, seven of the respondents hold their bachelor's degree from industrial design departments. There are also three architecture and two interior design graduates. With regard to the masters degree, five respondents have their degree in Industrial Design, two in Interior Design, and four in Architecture. One academic does not have a masters degree. In addition, eleven respondents have a PhD degree. With respect to this, seven respondents hold a degree in Industrial Design, two in Architecture, and two in Interior Design. One academic holds a 'Proficiency in Arts' degree

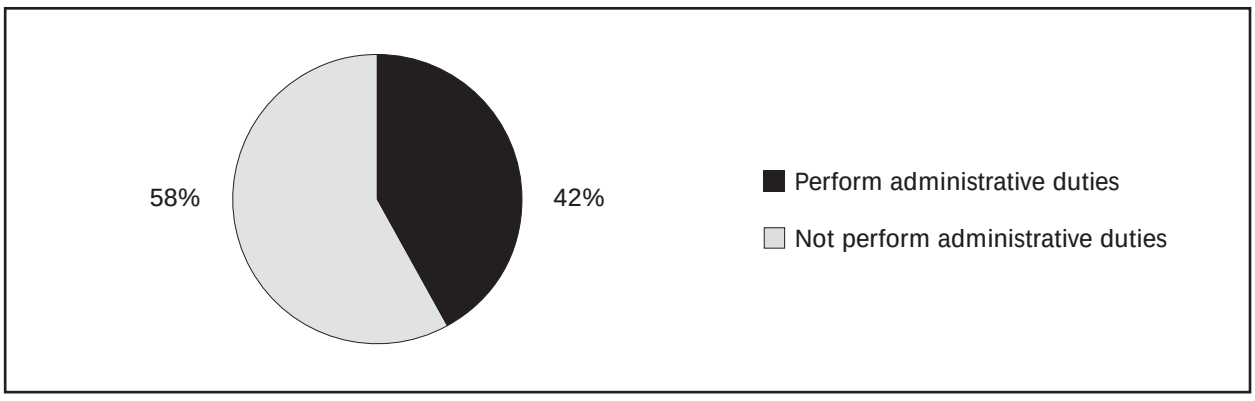

Figure 2. Distribution of respondents performing administrative duties in the first survey

Respondents	Bachelor's degree in	Master's degree in	PhD/Proficiency in Arts
Respondent 1	Industrial Design	Industrial Design	Industrial Design
Respondent 2	Industrial Design	Architecture	Industrial Design
Respondent 3	Architecture	Architecture	Architecture
Respondent 4	Industrial Design	Interior Design	Interior Design
Respondent 5	Interior Design	Industrial Design	Industrial Design
Respondent 6	Industrial Design	-	Industrial Design
Respondent 7	Architecture	Architecture	Architecture
Respondent 8	Industrial Design	Architecture	Industrial Design
Respondent 9	Industrial Design	Industrial Design	Industrial Design
Respondent 10	Interior Design	Interior Design	Interior Design (Proficiency in Arts)
Respondent 11	Industrial Design	Industrial Design	Industrial Design
Respondent 12	Architecture	Industrial Design	-

Table 4. Academic backgrounds of the respondents that took part in the first survey

while the other one does not have a PhD degree. In addition, most of the respondents are specialised with a publication in the field of ID education. Nine respondents are specialised with a publication in this research area, while the remaining three are not.

Second Survey Study: Three academics from MU, five from ITU, one from IYTE, four from METU, one from AU and two from IUE took part out of a total number of 16 academics (except for the one from MSFAU). Table 5 shows the distribution of the respondents with respect to their academic titles.

Table 6 gives information concerning respondents' bachelors, masters and PhD/Proficiency in arts degrees.

As indicated in Table 6, eight of the respondents got their bachelor's degree in industrial design. There are also three respondents with a bachelor's degree in architecture, three in interior architecture and two respondents with a bachelor's degree both in industrial design and interior design disciplines.

With regard to the masters degree, the distribution of respondents is as follows: four respondents with a degree in

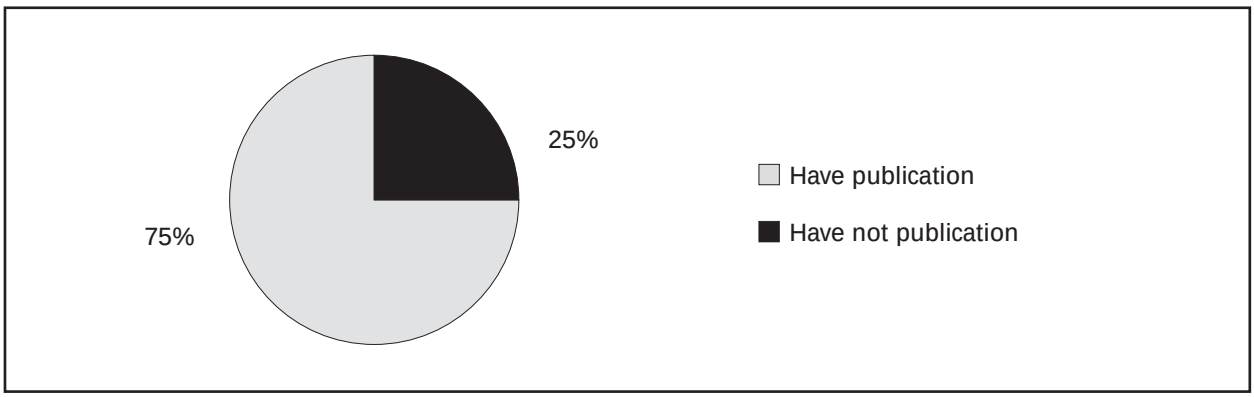

Figure 3. Distribution of respondents that took part in the first survey with a publication in the field of ID Education in the first survey

	MU	ITU	IYTE	METU	AU	IUE
Prof	1	2	0	0	0	0
Assoc Prof	0	2	0	1	0	0
Assist Prof	2	1	0	2	1	2
Inst	0	0	1	1	0	0

Table 5. The number of respondents with respect to their academic titles that took part in the second survey

Respondents	Bachelor's degree in	Master's degree in	PhD/Proficiency in Arts
Respondent 1	Industrial Design	-	Industrial Design
Respondent 2	Interior Design	Industrial Design	Interior Design
Respondent 3	Industrial Design	Other Related Discipline	Other Related Discipline
Respondent 4	Industrial Design	Other Related Discipline	Other Related Discipline
Respondent 5	Industrial Design	Other Related Discipline	Industrial Design
Respondent 6	Industrial Design	Interior Design	Interior Design
Respondent 7	Architecture	Architecture	Architecture
Respondent 8	Interior Design	Industrial Design	Industrial Design
Respondent 9	Industrial Design	Interior Design	Industrial Design
Respondent 10	Architecture	Architecture	Architecture
Respondent 11	Industrial Design	Other Related Discipline	Other Related Discipline
Respondent 12	Industrial Design and Interior Design	Industrial Design	Industrial Design and Interior Design (Proficiency in Arts)
Respondent 13	Industrial Design	Other Related Discipline	Other Related Discipline
Respondent 14	Interior Design	-	Interior Design (Proficiency in Arts)
Respondent 15	Industrial Design and Interior Design	-	Interior Design (Proficiency in Arts)
Respondent 16	Architecture	Industrial Design	-

Table 6. Academic backgrounds of the respondents that took part in the second survey

Industrial Design, two in Architecture, two in Interior design, and five in other related disciplines. Three Academics did not have a masters degree.

In addition, out of the thirteen respondents with a PhD degree, five people held a degree in Industrial Design, two in Architecture, two in Interior Design. Three respondents had a 'Proficiency in Arts' degree in Interior Architecture while three of them did not have a PhD degree. Seven of the sixteen respondents that took part in the second survey performed administrative duties. Most of the respondents were specialised with a publication in the field of ID education. Eleven respondents were specialised with a publication in this research area, while the remaining five are not.

5 Masters degree programmes in ID

The topics included in this section are student quantity, student admission criteria, frequency of updating the curricula, general education philosophies and specialisation areas.

First survey study: as indicated in Table 7, the approximate number of applications, admissions and graduations per year is given. The data was gathered from

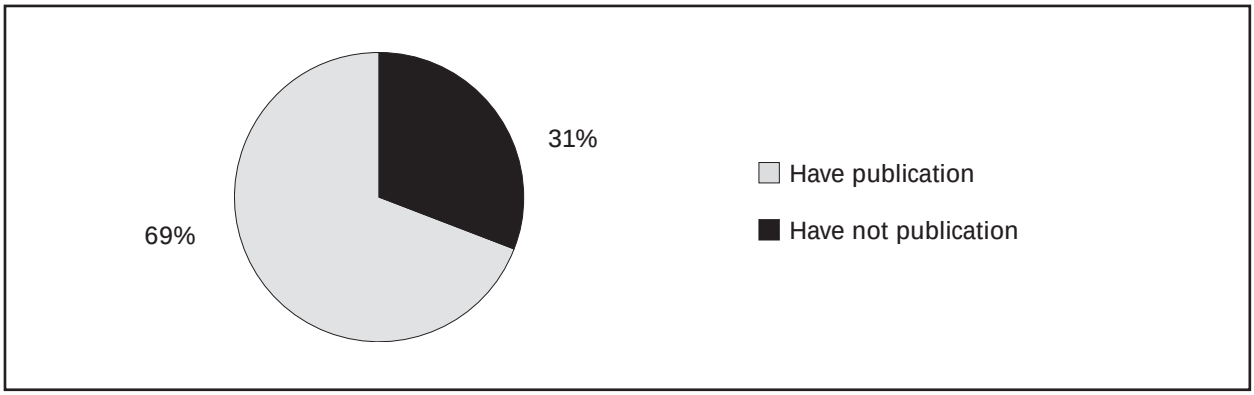

Figure 4. Distribution of respondents that took part in the second survey with a publication in the field of ID education

the academics. The average numbers per year were twenty-four for applications, ten for admissions and seven for graduates.

When the respondents were asked from which disciplines they admit students outside the ID discipline, they all answered that they admit students from different disciplines but the weight is on architecture and engineering disciplines. All universities where respondents teach accept students from these two disciplines. Two of the three respondents in METU said that they do not restrict entry from any disciplines and indicated that their department is an interdisciplinary one, and one respondent was more specific saying they admit students from the departments of architecture, interior architecture, graphics, mechanical engineering, and electrical-electronics engineering. Respondents from AU also said that they have no restrictions on disciplines. According to the survey answers, IUE admits students from the departments of business administration, architecture, interior architecture, mechanical engineering, city and regional planning, textile design and fashion design disciplines. ITU, on the other hand, accepts applications from the fields of engineering, architecture, fine arts and social sciences.

According to the information gathered from one respondent from MU, in early years of the programme the discipline range was held wide. After experiencing that the students were having serious difficulties during the scientific preparation period, the accepted disciplines were limited to architecture, mechanical engineering, ID and fine arts.

In addition, IYTE admits students from the disciplines of industrial ceramics, mechanical engineering, architecture, city and regional planning. A respondent from MSFAU

Universities	Applicant Students	Recently Admitted Students	Graduate Students	Distribution of Alumni		
				Academic	Industry	Other
MSFAU	5	5	(Changes every year)	30	60	10
MU	12-15	5-7	5	10	70	20
ITU	45-50	15-25	5-15	-	-	-
IYTE	30	No Admission Since Autumn 2004	5	25	75	-
METU	30-50	10-20	5-13	30	60	10
AU	10-12	5	1	20	80	-
IUE	15	6-7	-	50	50	-

Table 7. Respondents' estimates on applications, admissions, and graduations and alumni sorted by universities in the first survey

Universities	Accepted disciplines
MSFAU	Disciplines determined according to that year's needs and vision
MU	Architecture, Mechanical Engineering, Fine Arts
ITU	Engineering, Architecture, Fine Arts And Social Sciences
IYTE	Ceramics, Mechanical Engineering, Architecture, City Planning
METU	Architecture, Interior Design, Graphics, Mechanical Engineering, Electrical Engineering
AU	All Disciplines (Statistic, Business, Mechanical Engineering, Cinema, Mathematic Etc.)
IUE	Business, Architecture, Interior Design, Mechanical Engineering, City Planning, Textile Design, Fashion Design

Table 8. Accepted disciplines outside the discipline of ID

Universities	Frequency of the curricula being updated
MSFAU	Every semester
MU	Once per 2 years
ITU	Once per 10 years (Last update in 2002)
IYTE	Upgrading curriculum will be offered in the fall semester 2009
METU	Once per year
AU	Once per 3 years
IUE	Once per year

Table 9. Frequency of the curricula being updated according to the universities

indicated that for every academic year, students from other disciplines are admitted according to that year's needs and vision to conduct interdisciplinary studies. A summary of the topic can be found in Table 8.

Masters degree programmes should be updated and necessary changes should be made in accordance with the developing technology and knowledge. The respondents were asked how frequently their masters degree programmes are updated; and the answers are gathered in Table 9. In addition, the respondent from IYTE did not answer this question because no students are admitted to the masters degree programme.

Finally, respondents were asked about the educational philosophy and specialisation area of their universities' masters programme in ID, which is also the last question of the section. The answers of the three respondents from METU indicated that their masters degree programme is more concentrated on research and thesis, and is intended for aspiring academics. Also, it was the respondents' common opinion that the programme gives opportunity for interdisciplinary study groups and a common language of design is formed among these students. Again, the information gathered from two of the respondents indicates that specialisation in the sub-branches of design is not possible for this programme. According to this information, the education philosophy of this programme can be defined as:

> The programme is research based and it is open to different disciplines. Our aim is to give a notion that provides a common language for people from other disciplines and designers with practice and to provide

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> understanding for people from other disciplines about how decisions are made in the design process. Topics are weighted over specialisation systematic. These topics are Design Methods, User Focused Design, Analysing the Current Situation of ID Practice in Turkey, Culture-Design Relationship, Design Management and Process, Design Education, Interaction Design and Automotive Design.

In ITU, the programme was intended for academic studies. Particularly, the topics chosen for the theses were intended for the future. Another point is that gathering people from other disciplines under a single roof was considered to be an advantage. Embracing the same view, IYTE added academic familiarity, and design experience was considered in student admission criteria.

The answer of the respondent from IUE also emphasised the issue of gathering people from different disciplines and explained the programme's philosophy as:

> In Design Studies masters degree programme, our students conduct thesis/project studies in specialisation areas of their own choice. In the programme, gathering design disciplines under a single roof, an upper title is formed and it is aimed to provide research and application focused specialisation by interaction.

According to the information taken from the respondents from MU, their effort and mission are to combine the education provided with the students' original disciplines. On the other hand, again based on the information from the respondents, AU differs from others by its perception of education. The university places a great deal of importance on collaboration with the industry and they are in joint projects with big companies in the industry. Their education philosophy could be explained as:

> With regard to its educational philosophy AU focuses on university-industry collaboration. This approach is also true for masters education. Generally, in the courses, we conduct projects with industrial organisations like Ford, Otosan-Arçelik etc.

Additionally, with respect to its education philosophy, MSFAU chose to train students that are successful both in practice and in theory.

Second survey study: Respondents were asked to give a ratio. If they did not keep statistics about the areas classified as academic and industrial market groups, they were asked to come up with approximate estimates about the admissions. The data was gathered from the academics taking part in the survey study.

5.1 Analysis of educational systems in the masters degree programmes

After getting the opinions about the advantages of masters degree education over undergraduate education, the researcher asked the respondents to evaluate educational systems of ID masters degree programmes in terms of the weaknesses and strengths both in the first and second survey studies.

'The Strengths of Masters Degree Programmes in ID in Turkey', was formed with the help of the data gathered from the first survey study (Imamogluları, 2008). The points raised by at least one of the respondents in the final section of the survey were as follows:

Universities	Applicant	Distribution Of Alumni		
	Students	Acedemic (%)	Industry (%)	Other (%)
MU	5-15	10	60	30
ITU	30-50	35	50	15
IYTE	5-15 (Until 2003-2004)	25	60	15
METU	15-20	40	50	10
AU	30-50	-	-	-
IUE	15-30	No graduates yet but academic career aimed		

Table 10. Respondents' estimates on applicants and distribution of alumni according to universities in the second survey

1. The profile of the academic staff is improving as the number of internationally renowned academics who come back to universities in Turkey upon completing their studies abroad is increasing.
2. There is a considerable increase in the number of national and international publications in this discipline.
3. An interdisciplinary educational policy has been embraced. Academics from other disciplines can now teach in the departments of industrial design.
4. Access to international publications has become easier since university libraries have become more extensive and diverse in terms of the number of publications and databases.
5. Departments now have connections with those abroad, and exchange programmes have become available, which enable students as well as faculty members to experience different countries and cultures.
6. Technical facilities such as new workshops and laboratories have been launched.
7. The areas of specialisation have improved such as interaction design, and automotive design.
8. Interdisciplinary programmes have brought more flexible educational scheme.
9. Now that the programme of industrial design is recognised, students coming to the departments are more eager and motivated. This increases quality.
10. Increase in the number of students coming from diverse disciplines has improved the student profile.
11. A graduate degree in industrial design has gained importance in job applications, and students have begun to see this programme as a career path.
12. Since competition in the industry has become more intense, firms have become more conscious and begun acting as sponsors in educational projects.

'The Weaknesses of Masters Degree Programmes in Industrial Design in Turkey', was formed with the help of the data gathered from the first survey study. The points raised by at least one of the respondents in the final section of the survey were as follows:

1. Excessive workload of the present academic staff is decreasing efficiency.
2. The academic staff is insufficient in numbers, and the number of academics in the field is even decreasing.
3. Since departmental courses are determined in accordance with the majors of the present academics, they are temporary. For this reason, some courses are never available, and some of them are left out of the curricula.
4. Since only academics with a doctoral degree can teach in the masters degree programme, students are deprived of the practical support of designers actively working in the industry.
5. The present masters degree programmes are not radically different from one another since they all fluctuate between practice and research without making a clear choice.
6. There are not enough practice-based theses completed in the field since the majority of them are theory-based.
7. Since masters degree programmes do not get enough financial support, the infrastructure is not very strong.
8. The masters degree courses fail to meet the needs of the national industry and design culture. The curricula are not updated.
9. The programmes lack quality accreditation.
10. The educational background of the students admitted to the masters degree programme is not diversified. The number of students coming from outside of design-based disciplines is still too limited.
11. Some students who are enrolled in the programme have difficulty finding time for their studies since they are working. This decreases the quality of education in the programme.
12. Since firms underestimate collaboration between disciplines, university-industry collaboration is less effective in masters degree programmes than undergraduate ones.
13. Due to the lack of advanced laboratories, university-industry collaboration is not sufficient in masters degree programmes.

6 Comparative results of the research

The researcher conducted a situation analysis study in order to examine the masters degree education in industrial design in Turkey through a comparative analysis of the existing education systems.

The situational analysis concentrated on three main questions:

- What are the institutional structure, missions, and visions of the universities offering a masters degree in the field of industrial design in Turkey?
- What are the educational curricula and course descriptions of these programmes?
- What is the general situation of the teaching staff and students in these programmes?

It was found out that the seven masters programmes in ID do not display many differences. However, some points should be highlighted. In this regard, AU and IUE are different from each other in terms of educational structure. Since the programme in AU is connected to the vocational school of industrial art, its educational philosophy, as well

as the academic staff have been influenced by that industry. The programme also reflects the needs of that industry. On the other hand, the programme in IUE is an interdisciplinary one, as it encompasses various disciplines of design. This kind of educational structure not only provides variety in academic personnel but it also enriches the programme with interdisciplinary courses. The programme in METU also differs from the others as it embodies a 'human factors usability lab' and the international 'Interaction Design' programme.

The sections indicating the views of the respondent academics were coded and analysed in comparison with the main research questions. As can be seen from the figures indicating educational background of the respondents, academics who teach in masters degree programmes in ID were predominantly from design related disciplines such as architecture and interior design whereas engineering based background is not very common. The nature of the programmes was also parallel to the general outlooks of the academics showing a weight of design theory. Contribution of an engineering approach in the curricula is secondary when compared with the weights of design disciplines and this can be again interpreted as a reflection of the academic structure.

What are their views regarding the benefits of having a masters degree in industrial design? From their point of view, masters degree programmes have mostly been designed towards theory and research that equips students with academic skills. Besides, these programmes embody a more 'advanced' education than undergraduate ones, which enable graduates coming from different universities/disciplines to gain experience in working together in the industry.

What do they think about the weaknesses and strengths of the current education system? With regard to the weaknesses of the masters degree programme, it could be said that 'problems concerning the academic staff' reported by all respondents created unanimity. That was, excessive workload of the present academic staff was decreasing efficiency. Furthermore, they were insufficient in numbers, and the number of academics working in the field was even decreasing. However, not much was being done. Another weak point is that masters degree programmes do not get enough financial support, and also the infrastructure is not very strong.

With regard to the strengths of the masters degree programme, the respondents seemed to agree with the following points: the increase in the number of publications, the fact that university libraries have become more extensive and that access to academic sources has become easier. In addition, an interdisciplinary educational policy has been embraced so that academics from other disciplines can now teach in the department. Exchange programmes have also become available in all Turkish universities so that students can gain international experience. Besides, more eager and motivated students were enrolling in the programmes, which increase the quality and improves the student profile.

7 Further Studies

As the literature survey shows, the relevant literature is almost non-existent. Therefore, this research can be regarded as the only study in its own field in Turkey, which comparatively analyses the current situations of masters degree education in ID. For this reason, it is necessary to conduct more studies on this field, and new resources should be formed, as the graduate programmes in ID are capable of coming up with new developments.

This study centres on the masters degree programmes in ID in Turkey. In the future studies, the scope can be widened by including the programmes abroad in order to make a comparative analysis. In this way, the needs of the programmes in Turkey could be determined.

Finally, one more recommendation for further studies about collecting qualitative data is that a survey in the form of 'Delphi Technique', which is based on a structured process for collecting and distilling knowledge from a group of experts, can be carried out in order to obtain common perceptions on masters study in the field of Industrial Design.

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