Industrial Design for SMEs:
Evaluation of a Design Collaboration Project from the Perspective of SMEs

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Abstract: Within this paper, relationship between small and medium-sized enterprises (SMEs) and industrial design has been examined with particular reference to 'ITU (Istanbul Technical University) - ISO (Istanbul Chamber of Industry) Industrial Design Projects for SMEs' which is a graduation project course at the department of industrial design in ITU, and represents the first and only systematic approach that regularly brings SMEs with no previous design experience and industrial design together in Turkey. This paper presents and discusses the results of a research carried out for making an evaluation of this collaboration project from the perspective of SME representatives, in order to understand impacts of the project on SMEs and shed light on their attitudes towards industrial design. The research data was collected from interviews and questionnaires conducted with SME representatives of this project. Outcomes and benefits of this project have been inquired besides problems, opinions and suggestions of SME representatives about this design collaboration.

Key words: SMEs, Industrial Design, Design Support

1. Introduction

Small and medium-sized enterprises (SMEs) are increasing their significant role in the economic activities of the nations, with their high rates of employment and their inherent characteristics, such as flexible production structure, innovation capabilities, devotion to service and networking, each of which are valuable assets in today's economic environment [1]. In spite of their dominancy in design, development and manufacturing of new products, very few of SMEs have motivation, capacity and awareness to implement design strategies in their businesses [2]. The most significant barriers for use of design in SMEs are; lack of knowledge about how to use and where from take design service; consideration of design as a cost increasing factor; inexistence of a customer demand for design; and inadequacy of an interface between SMEs and designers [2,7].

The literature witnesses considerable number of attempts that focuses on bringing SMEs and design together within design support and design promotion programmes most of which are supported by regional governments, representatives of small business sector, universities, design centers and institutions. Strategies and methods followed within these programmes differ from one country to another, depending on the diverging economic, social and political dynamics of each nation. [3].

In the case of Turkey, SMEs and industrial design ignored one another for many years, mainly because of governmental development strategies, paving way for the late construction of original design understanding in SMEs; and infrastructure of industrial design profession in Turkey, which is based on an education level and mainly oriented according to the needs of large-scale companies, leaving SMEs that constitute the majority of manufacturing sector outside design agenda [5]. In the late 90s, the needed industry connection has intended to

be maintained by university-industry collaboration projects in industrial design, but still with a focus on large-scale cooperations which are expected to provide technical support and design consultancy for student designers. In brief, SMEs in Turkey remained untouched by design, while Turkish industrial design has been shaped to serve large companies [5].

'ITU-ISO Industrial Design Projects for SMEs' can be considered as a particular experience that focuses on the design needs of SMEs in Turkey, through an industry-education partnership which may be referred for developing a strategy about how to increase efficiency of the relationship between SMEs and industrial design and better promote design among SMEs. This paper briefly outlines the methodology followed in this project and bring an insight about outcomes of the project from the perspective of SMEs.

2. ITU-ISO Industrial Design Projects for SMEs

By building an interface between SMEs and senior industrial design students, 'ITU-ISO Industrial Design Projects for SMEs' aims to; introduce industrial design to SMEs without previous design experience and introduce advantages of working with industrial designers; increase awareness about the value of design for businesses and how to use it [5]; provide an opportunity for student designers to gain experience and improve their abilities in working with SMEs [4]. The project is coordinated by the graduation project team, composed of teachers at the department of industrial design in ITU, whilst SME side of the collaboration is represented by ISO (Istanbul Chamber of Industry) [5].

The procedure and implementation process followed in 'ITU-ISO Industrial Design Projects for SMEs' is briefly shown in Figure 1.

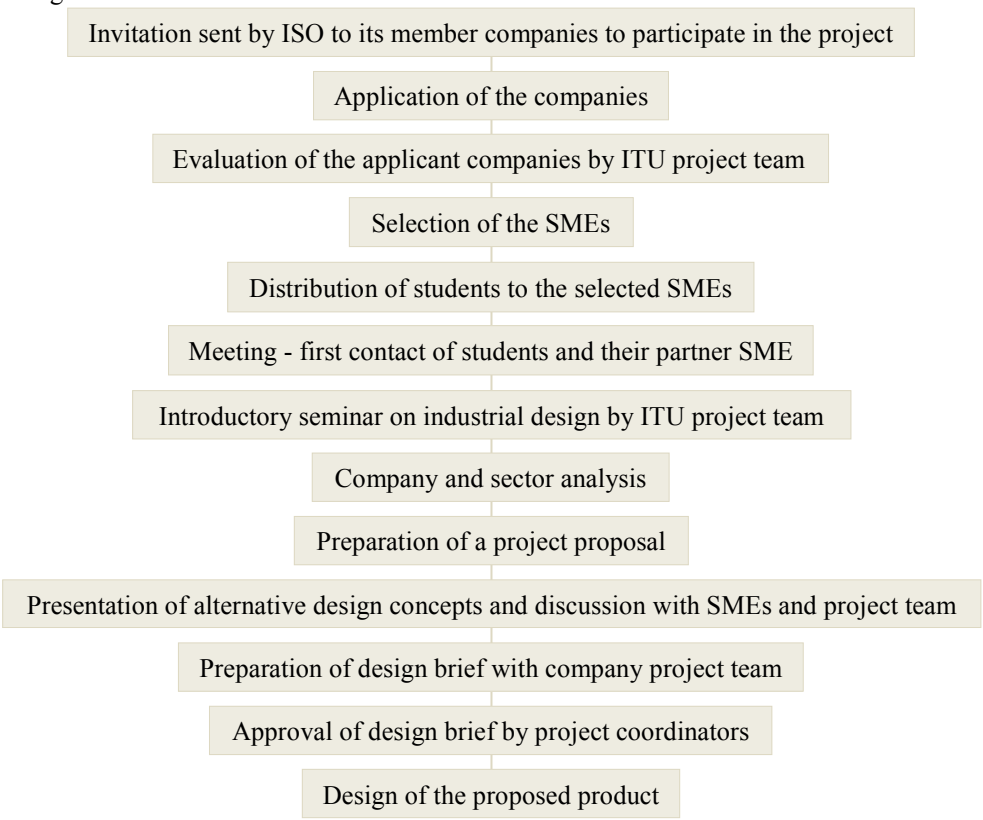

Figure.1 Methodology of the ITU-ISO Industrial Design Projects for SMEs [8]

Between the first systematic execution of this project in 2003 and 2008, 162 projects have been registered with 140 companies. The number of participant companies is determined by the number of senior industrial design students enrolled, which is generally around 30 each year. In selection of the SMEs, priority is given to the companies without previous design experience and sectors that naturally provide opportunity for new product development [5]. Students and the participant companies are matched arbitrarily and students are expected to present their design knowledge and skills to achieve any design project, regardless of the sectoral difference.

Compared with design support and promotion mechanisms for SMEs, the project is an outstanding formation, being executed without any financial or consultancy support from government or any institutional bodies besides which the participant SMEs are not asked to pay any fees. In this sense, the project can be regarded as an optimized type of design promotion mechanism that reach considerable number of companies yet giving individual assistance of students. Collaboration achieved in this project, is a breakthrough experience for students as they directly take the role of design consultant by considering their company as their client.

3. Methodology

In this research, qualitative approaches have been followed and the SME representatives' experiences in 'ITU-ISO Industrial Design Projects for SMEs' along with their attitudes towards industrial design have been investigated using interviews and questionnaires as data collection methods.

Population of the study includes SME representatives that participated in 'ITU-ISO Industrial Design Projects for SMEs' between the years 2003 and 2008. Considering 162 projects administered within 5 years, responds of participants of different years are supposed to reveal different contexts and characteristics which should be evaluated according to its time. Because of that, the interview has been limited to SMEs that attended to the project in 2007-2008 Spring semester. Among the 31 SMEs participated in the project in 2008, 16 SME representatives, who attended the final graduation jury of the project have been interviewed face to face. Data has been collected according to some pre-set topics and it has been analyzed inductively by coding, categorizing, naming and labelling the emerging concepts under groups.

Afterwards, questionnaires including mostly close-ended and 4 point likert scale questions have been sent via internet and fax to whole population in order to verify some points gathered from the analysis of interview data. Sample of the questionnaire consists of 13 respondent SME representatives.

4. Results and Discussions

4.1. Results of the Interview

Responses given to interview questions have been conceptualized and tabulated as follows, in SME representatives' ways of expression, respectively according to the number of companies that has given the answers.

Motivations of the Companies for Participation in the Project

Design and develop a new product: 7; Give support to the young generation/ students: 5; Benefit from student designers' imagination and educational background: 3; Experience industrial design, learn how it can be used: 3; Benefit from industrial designers' different approach to our sector: 3; Differentiate our products in the market: 2; Take license or patent for the product we develop: 2; Expand the vision of the company: 2; Be

active in the design based research and development: 2; Gain an understanding about professional design process: 2; Promote our company, brand: 1

Expectations of the Companies from Student/ Designers

Design and develop a new, original product: 7; Identify our deficiencies and direct us for complementing them: 3; Develop aesthetically appealing products for our existing market: 3; Transform our main ideas to designed products: 3; Develop products that are in consistency with existing manufacturing methods: 2; Focus on the project and allocate more time and interest on this project : 4

Contributions and Benefits of the Project for the Companies

Understood the importance of employing industrial designers professionally: 5; Development of good relationships with the university: 5; Adding a new product to our portfolio: 3; Inspired by the students' enthusiasm: 3; Understood the importance of looking at our field of activities from outside: 2; Project let us see different aspects of product design (ex: ease of use, storage): 2; Increased design awareness within all departments of the company: 2; Company has gained confidence for developing its own products: 2; We have shifted our direction from making copies of the existing products to designing original products: 1; Patent and industrial design application: 1

Contributions of the Student/ Designers Within the Project

Research and analysis of the market opportunities: 5; Visualization of our ideas about the product by using 3D modelling programmes: 4; Developing a product aesthetically: 4; Bringing a different way of thinking to company: 3; Creating new ideas that have not come into our minds before: 3; Material research: 2; No significant contribution: 2

Difficulties Encountered During the Project

No significant problem: 6; Student's lack of interest to the sector: 3; Time limitation, schedule of the project: 3; Companies and educators expect different things from the student: 2; Difficulty of meeting with students due to company site's distance: 2; Procedures of the company that hampers the design process: 2; Student's lack of knowledge about the sector:1

Opinions and Suggestions of SME Representatives about the Project

The meetings in which students, companies and educators attend must be organized and tutors should actively be included in the process: 5; The schedule of the project should be extended: 4; Students should be distributed in consistency with their areas of interest: 2; Students should go to the meetings with the company more frequently: 2; The main motivation of student designers is taking high grade. Because of that they can not bring out professional products: 1; Marketing side of the ITU-ISO projects should be improved: 1; Educators approach the product only with respect to its design. However, in our country, simple and cost effective innovation are coming into prominence. Importance of design is not appreciated yet. Because of that, instead of creating gorgeous designs they should direct their interest into feasibility and manufacturability: 1

4.2. Results of the Questionnaires

Close ended questions about the material outcomes of the project have revealed that; in one of the companies without previous design experience, professional industrial designers have started to be employed in outsourced form; one of the companies manufactured the end-product developed within the project; and one of the companies applied for official registration of the product developed within the project. It is critical to see that

majority of the questionnaire respondents were companies attended to project in 2008, meaning they are expected to increase material outcomes in following years.

Figure 2 shows respondents' level of agreement on statements given as potential design benefits of the project as response to the question: 'What are the outcomes of 'ITU-ISO Industrial Design Projects for SMEs' on behalf of the company?'

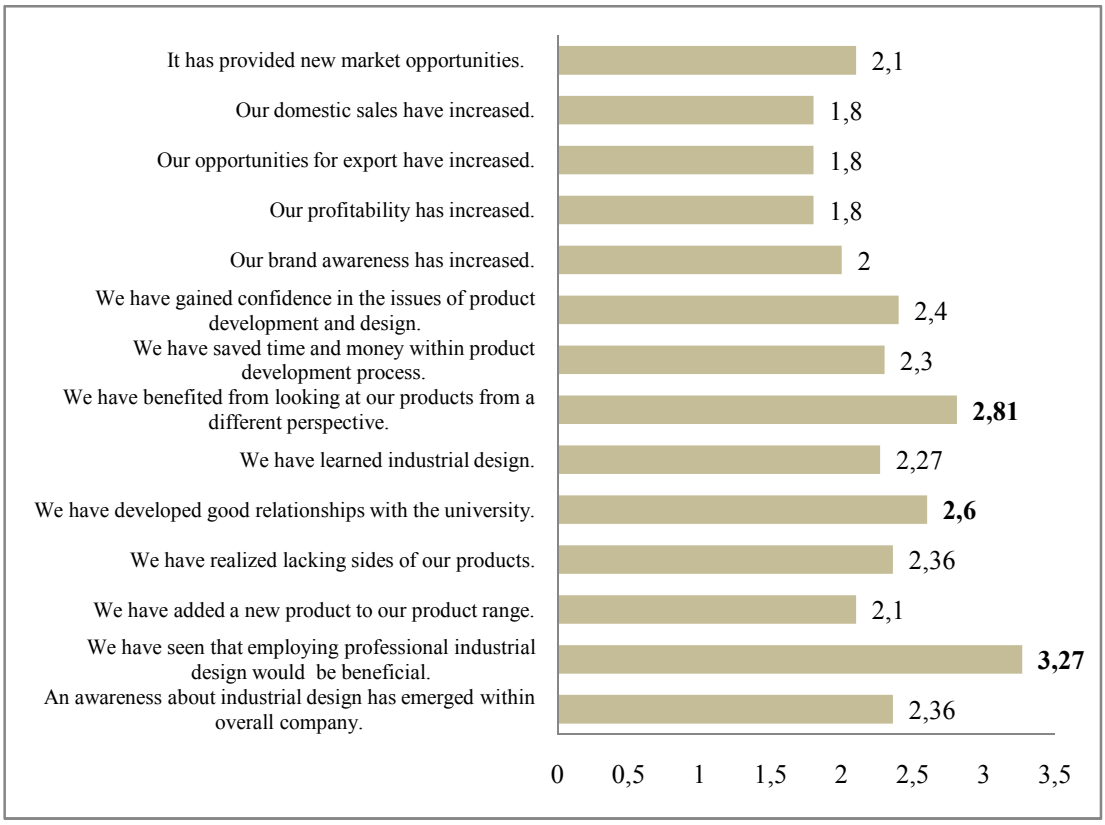

Figure.2 Outcomes of ITU-ISO Industrial Design Projects for SMEs

Figure 3 demonstrates SME representatives' level of agreements on statements given as knowledge and skills of student designers.

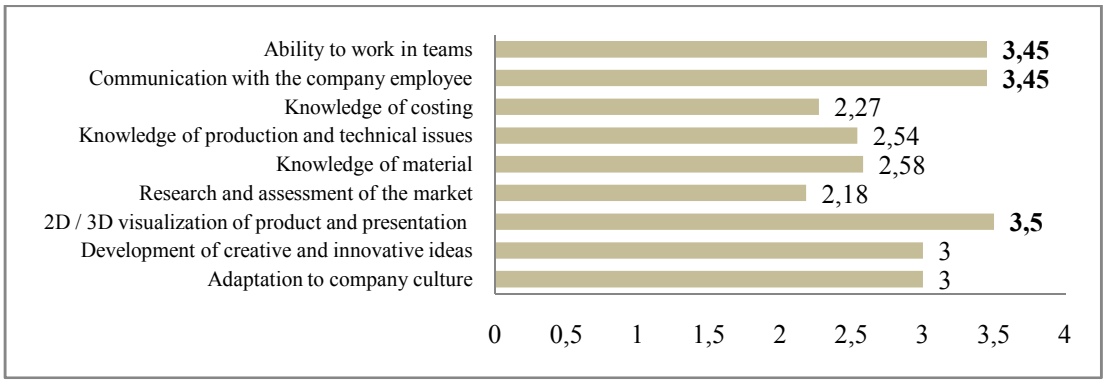

Figure.3 Evaluation of student designers' knowledge and skills by SME representatives

5. Conclusions

The overall benefits and outcomes of the 'ITU-ISO Industrial Design Projects for SMEs' as stated by SME representatives show that the project achieved its primary aim, which is increasing SMEs' awareness about the

importance of working with industrial designers. A combined analysis of the questionnaire and interview results indicate that the most significant benefit of the project is that it created an awareness among participant SMEs about the importance of employing professional industrial designers. Development of good relationships with the university and looking at the products from design perspective are the other outcomes came into foreground.

The analysis of expectations and motivations of companies reveals that SMEs expect a professional consultancy service from the student designer rather than an introductory design programme, so that they can generate new ideas and transform them into commercialized products. Considering design context of Turkey, industrial policies do not include any design policy and there is neither any governmental and institutional body responsible for design promotion, nor an advanced design consultancy sector that can give systematical design support [6]. Therefore, one to one professional design consultancy approach, supporting an individual assistance to help SMEs build a design understanding that is diffused into all levels of company, is not feasible and can not be achieved in short term in Turkey.

This study can be considered among one of the limited number of studies that investigates benefits of industrial design from the perspective of SMEs. Regarding the context specific nature of design collaboration projects, results of this research can be taken as a particular example and reference for developing a strategy about how to better promote design within SMEs and increase efficiency of relationship between SMEs and industrial design.

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