

# TEXTILE EDUCATION IN TURKEY: DEMOGRAPHIC PROPERTIES OF TEXTILE ENGINEERING STUDENTS AND THEIR FUTURE VISIONS

## TÜRKİYE’DE TEKSTİL EĞİTİMİ VE TEKSTİL MÜHENDİSLİĞİ ÖĞRENCİLERİNİN DEMOGRAFİK ÖZELLİKLERİ VE GELECEK VİZYONLARI

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### ABSTRACT

Textile sector provides for the dressing need which is one of the basic physiological requirements of humanity. That’s why; it is one of the oldest industries of the world and also the keystone of the industrialization. Initially the textile sector was sustained by traditional methods and mentor system and later it has been transformed into a complex sector which requires technology, knowledge and education. Currently the textile sector is much more than a mere provider of dressing need as it has connections with almost all of the other sectors. Due to this rapid and functional property of the sector, textile education has made a great progress which is still continuing. In the present study, the development in Turkish textile education is analyzed shortly at first. After that, the results of a field study which aims to evaluate the demographic properties and the future visions of Turkish textile engineering students are represented.

**Key Words:** Textile education, Textile engineering students, Demographic properties, Future vision, Turkey.

### ÖZET

İnsanoğlunun fizyolojik temel ihtiyaçlarından birisi olan giyinme ihtiyacını karşılayan tekstil sektörü dünyanın en eski sektörlerinden ve sanayileşmenin temel taşlarından birisi olmuştur. Önceleri geleneksel yöntemler ve usta çırak ilişkisi ile sürdürülen sektör günümüzde ileri teknoloji, bilgi ve eğitim gerektiren, giyinme gibi temel ihtiyaç özelliğinin çok dışına çıkan ve neredeyse tüm sektörlerle yakından ilişkili olan kompleks bir sektöre dönüşmüştür. Sektörün bu hızlı ve fonksiyonel özelliği nedeni ile de tekstil eğitimi büyük gelişme göstermiştir ve göstermeye devam etmektedir. Bu çalışmada kısaca Türkiye’deki tekstil eğitimindeki gelişme analiz edildikten sonra ülkede tekstil eğitimi veren üniversitelerin tekstil mühendisliği bölümlerindeki öğrencilerin demografik özellikleri ile gelecek vizyonlarına ilişkin gerçekleştirilen saha çalışmasına yer verilmiş ve değerlendirmelerde bulunulmuştur.

**Anahtar Kelimeler:** Tekstil eğitimi, Tekstil mühendisliği öğrencileri, Demografik özellikler, Gelecek vizyonu, Türkiye.

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### 1. INTRODUCTION

Textile sector provides for the dressing need which is one of the basic physiological requirements of humanity. That’s why; it is one of the oldest industries of the world and also the keystone of the industrialization. Due to this property, textile sector underlies the industrialization of the countries as a basic need commodity. Recently most of the developed countries have used textile sector as an instrument in development so that

these countries have been able to focus on other sectors after reaching a definite level of development. Today the textile sector still significantly participates in the development strategies of the developing countries.

Initially the textile sector was sustained by traditional methods and mentor system and later it has been transformed into a complex sector which requires technology, knowledge and education. Currently the textile sector is much more than a mere

provider of dressing need as it has connections with almost all of the other sectors. Due to this rapid and functional property of the sector, textile education has made a great progress which is still continuing.

In the present study, the development in Turkish textile education is analyzed shortly at first. After that, the results of a field study which aims to evaluate the demographic properties and the future visions of Turkish textile engineering students are represented.

## 2. TEXTILE EDUCATION IN TURKEY

Textile sector has an important place in Turkey and has kept its significance as a locomotive in national development for a long time. Also it is still one of the most competitive sectors of the country. The sector provides the 19% of the export, 8% of the gross national product, %15 of the employment in manufacturing industry, and 15% of investment incentives. Moreover the sector is the seventh biggest supplier of the world in clothing and ninth biggest in textile (1, 2, 5).

This situation can be attributed to the long-term experience of the sector and its structure of integrated production which is infrequently coincided throughout the world. In spite of the commonly encountered problems, the sector will maintain its significance at some length with the help of its properties such as experience, infrastructure, value added products and qualified inputs.

Textile education which provides qualified labour has great contributions to the existing and competitive structure of the textile sector. Textile education in Turkey is being administered by 170 vocational high schools and 12 textile engineering departments as well as by vocational schools in secondary education (2, 3).

Education at vocational schools and vocational high schools largely contributes to the recruitment of qualified intermediate staff for the sector whereas the education at textile engineering departments provides educated textile engineers who will work as senior officials. Graduated textile engineers usually take charge at the departments of production, marketing, planning, research & development in the textile and clothing enterprises.

Although the economic crises have slightly impaired the charm of textile education; it is still one of the popular preferences of talented students. When compared with other disciplines, textile engineering holds the front seat of the university preferences of the high school students.

Approximately 1000 engineers are graduated from textile engineering departments every year while 4000 from vocational high schools and 10.000 from vocational schools (2, 3). All of these graduates have great contributions for the textile sector.

## 3. THE PURPOSE OF THE RESEARCH

It is obvious that the the textile engineer candidates who are meant to take charge at key points in textile and clothing enterprises will participate significantly in the success or failure of enterprises. For this reason, the textile engineer candidates should be educated excellently so that they would have knowledge about the sector.

The present research aims to determine the demographic properties of textile engineering students in Turkey as well as their ideas and visions about their upcoming professional life and the future of the textile sector.

## 4. THE RESEARCH METHOD

In parallel with the aim of the research, a questionnaire form consisting of 36 questions is prepared. This survey is conducted within April-May 2010 at 11 universities which have textile engineering departments that had given graduates. In order to be able to conduct the previously prepared questionnaires, permissions are obtained from the heads of the textile departments. A total of 2700 questionnaires which approximately correspond to 90% of the registered students are sent to the departments. After the repatriation and evaluation of the sent-back questionnaires, 2017 of them are incorporated to the research. The rate of return is calculated as 75%. After the conduction of the survey, collected data are evaluated with SPSS 16.0 programme. At the beginning of statistical analysis, the reliability of the questionnaire is measured and the reliability coefficient  $\alpha$  is found as 0,812. According to this finding, the scale of the questionnaire is addressed to be highly reliable (4).

## 5. GENERAL FINDINGS OF THE RESEARCH

The questions which aim to specify the demographic properties of the students are evaluated firstly. Accordingly, 57% of the participating students are women and the remaining

43% is men. The average age of the students is computed to be 21,5 years. The participating students are being educated in 11 universities which are located in different provinces of Turkey (Table 1). The survey shows a balanced dispersion of students throughout grades. That is; 30% of the reviewed students are in the first grade whereas 23% is on the second, 23% is on the third and 23% is on the fourth grade.

**Table 1.** The distribution of students according to university

	Frequency	Percent	Valid Percent
Ege	325	16,1	16,1
Dokuz Eylul	92	4,6	4,6
Uşak	194	9,6	9,6
Pamukkale	120	5,9	5,9
S. Demirel	225	11,2	11,2
Gaziantep	78	3,9	3,9
Sutcu Imam	292	14,5	14,5
Cukurova	247	12,2	12,2
ITU	106	5,3	5,3
Erciyes	65	3,2	3,2
Uludag	273	13,5	13,5
Total	2017	100	100

**Table 2.** The distribution of students according to family income

	Frequency	Percent	Valid Percent
Under 1000 TL	373	18,5	19,1
1001-2000 TL	942	46,7	48,3
2001-3000 TL	426	21,1	21,9
Over 3001 TL	208	10,3	10,7
Total	1949	96,6	100
Missing System	68	3,4	
Total	2017	100	

The majority of the reviewed students have intermediate-income families (Table 2). In parallel, most of these students come from the developed regions of Turkey in which per capita income is high (Table 3).

**Table 3.** The distribution of students according to geographical regions

	Frequency	Percent	Valid Percent
Aegean	368	18,2	18,5
Marmara	414	20,5	20,8
Mediterranean	423	21,0	21,2
Black Sea	225	11,2	11,3
Central Anatolia	305	15,1	15,3
East Anatolia	111	5,5	5,6
Southeastern Anatolia	145	7,2	7,3
Total	1991	98,7	100
Missing System	26	1,3	
Total	2017	100	

Nearly 38% of the reviewed students are the alumni of Anatolian high schools whereas 24% is graduated from super high school, 30% from regular high school and 2,6% from science high school. The remaining students are alumni of vocational schools, teacher high schools and colleges. In Turkey, Anatolian high schools and science high schools yield more qualified and better education when compared to other schools. Moreover Anatolian high schools administer an advanced education of foreign language. The findings of the present study show that most of the textile engineering students have received qualified education at their high schools. These findings also indicate that textile engineering is an attractive option for university education. The participating students claim that textile engineering is their seventh preference at the university entrance exam in average.

The dispersion of students according to their reasons for preferring textile engineering and the degree of foreign language knowledge are respectively given. Approximately 33% of the students express that they have chosen textile engineering department willingly while 21% of the students have chosen the discipline accidentally. Meanwhile 19% of the students have chosen textile engineering because of their families/friends, and 16% of the students have preferred this discipline due to their scores at the university entrance exams. To sum up, it can be suggested that most of the students have chosen textile engineering

deliberatively. Nearly 76% of the textile engineering candidates know one foreign language whereas 21% know two and 3% know three or more foreign languages. Textile engineers should know at least one foreign language in order to cope with currently existing rivalry conditions and most of the reviewed students are aware of this situation.

Nearly 85% of the reviewed students do not work professionally at present. On the other hand 8,5% works at temporary jobs, 5% works part time and 2% works at their own business. Approximately 44% of the textile engineer candidates want to get master degree after graduation whereas 21% is unwilling to do so. 35% of them are hesitant about graduate education. As for the students who plan to get graduate education, 36% wants to get master degree at textile, whereas 28% wants to get master degree at management, 14% at marketing, 13% at international trade, and 2% at logistics. Interestingly, 7% of them desire to get a master degree at a totally different field. The rivalry conditions of the sector and the early career wish of the students direct them into graduate education. Once the textile engineering students decide to have graduate education, they usually prefer business fields as their research areas. Therefore they would be able to become a specialist both in textile and business right alongside with an early and satisfying career.

**Table 4.** The distribution of students according to their intention for professional work

	Frequency	Percent	Valid Percent
Production	477	23,6	25,1
Planning	218	10,8	11,5
Quality Control	209	10,4	11
Customer Representative/Marketer	568	28,2	29,9
Research&Development	429	21,3	22,6
Total	1901	94,2	100
Missing System	116	5,8	
Total	2017	100	

The dispersion of students according to their assumable positions after graduation is shown in Table 4. Accordingly, 30% of the textile engineer candidates are willing to work as customer representatives/marketers

whereas 25% wants to work in production department, 22% in research and development department and 11% in quality control department.

In parallel, 64% of the reviewed students consider themselves as a worker/manager in textile sector in future whereas 15% of them think of being entrepreneurs. On the other hand, 8,5% of them wants to work at different sectors and 4% visualizes themselves as an entrepreneur in an another sector. Moreover, 7% of the reviewed students want to work as research assistants or specialists in governmental organizations. Interestingly, 1% of the students do not plan to work after graduation. Since the textile sector usually faces with difficulties in the competitive issues at international markets, it is a realistic approach for the students to seek professional opportunities in other sectors. These findings also suggest that textile engineering students tend to sink into pessimism because of the predictions about the future of textile sector.

About 39% of the students address the promotional opportunity as the most important criterion for accepting to work in an enterprise after graduation. Corporate image/brand (23%), working conditions (20%), payment (10%), integrated production (6%) and other criteria follow this criterion respectively. Such a finding indicates that textile engineering students are able to make a conscious decision for the correct working place.

The reviewed students commonly identify the insufficient government assistance as the most important problem of Turkish textile and clothing sector (32.5%). Insufficient branding (25,4%), great market losses (17%), unemployment (12%), high input costs (8%) and other criteria (4%) are respectively regarded as the most important problems of Turkish textile and clothing sector.

The survey offers 18 statements about the education, self-development level and future vision of the textile engineer candidates. The participating students are required to choose their agreement levels for each of these statements. In quinary likert scale I absolutely agree is coded as 1, I agree is coded as 2, I have no idea is coded as 3, I don't agree is coded as 4 and I don't agree absolutely is coded as 5. The findings are given in Table 5.

**Table 5.** The education, self-development level and future vision of the students

	N	Mean	Std. Deviation
Content/glad	2017	2,47	1,153
Education	2017	3,07	1,075
Courses	2017	3,15	1,155
Lecture style	2017	3,14	1,030
Technical and instructional opportunities	2017	3,10	1,109
Technical and instructional equipments	2017	2,85	1,145
Laboratories and pilot mills	2017	3,03	1,174
Technical visit activities	2017	3,06	1,167
trainings	2017	1,75	,896
Academican-student relationships	2017	2,80	1,133
Research assistant-student relationships	2017	2,93	1,143
Professional magazines/publications	2017	3,05	1,107
Professional associations	2017	2,80	1,279
News and advances	2017	2,42	1,005
Brand	2017	2,95	1,177
External appearance and gender	2017	2,53	1,234
Crisis	2017	2,39	1,086
Future anxiety	2017	3,22	1,362

Approximately 62% of the students are content to be a textile engineering student (Average=2,47). However, 36% of them think that their education is sufficient whereas the education is insufficient according to 40% of these students (Average=3,07). Nearly 36% of the students think that the courses they have been taking are useful for their careers whereas 44% disagree with this statement. (Average=3,15). Moreover, 33% of the students claim satisfaction from the lecture styles and 41% claims dissatisfaction (Average=3,14). In parallel, 35% of the participating students think that the technical and instructional opportunities are sufficient while 41% thinks that these opportunities are insufficient (Average=3,10). Similarly, 47% of students think that the technical and instructional equipments are adequate whereas 34% thinks that these equipments are insufficient (Average=2,85). According to 40% of the reviewed students, the laboratories

and pilot mills in their departments are satisfactory while 39% thinks that these are insufficient (Average=3,03). On the other hand, 37% of the students think that technical visit activities are efficient whereas 40% does not agree with this statement (Average=3,06). The majority of the students (87%) express that the department/enterprise trainings are useful for their careers (Average=1,75). Almost half of the participating students (48%) think that student-academician relationships in their departments are satisfactory while 28% disagree with statement (Average=2,80). Accordingly, 41% of the students claim that research assistant student relationships are satisfactory in their department whereas 32% indicates that these relationships are dissatisfactory (Average=2,93). Nearly 39% of the students state that they follow the professional magazines and publications whereas 39% declare that they do not follow any professional issues (Average=3,05). More than half of the participating students (53%) are the members of professional associations and 36% of them do not belong to any professional association (Average=2,80). Almost 66% of the textile engineer candidates follow the latest news and advances in textile sector (Average=2,42). In addition, 41% of the participating students think that their university/department is a brand and this status will be helpful while they are looking for job. However, 32% of them do not agree with statement (Average=2,95). According to 60% of the reviewed students, external appearance and gender are important factors for making a good career (Average=2,53). Most of the reviewed students (62%) believe that the textile and clothing sector will overcome the crisis (Average=2,39). Less than half of the participating students (45%) are anxious about their future whereas 33% of them do not express such an anxiety (Average=3,22).

## 6. MULTIPLE COMPARISON TESTS AND CROSSTABS

The alternative hypotheses of the research are given below.

H<sub>1</sub>: There is a statistically significant difference (at 95% confidence interval) between participating

women and men in aspect of preference for textile engineering.

H<sub>2</sub>: There is a statistically significant relationship (at 95% confidence interval) between preferring textile engineering and gender.

H<sub>3</sub>: There is a statistically significant difference (at 95% confidence interval) between foreign language knowledge of the participating students in aspect of their universities.

H<sub>4</sub>: There is a statistically significant relationship (at 95% confidence interval) between the university of the participating students and their intentions for professional work after graduation.

H<sub>5</sub>: There is a statistically significant relationship (at 95% confidence interval) between the university of the participating students and their vision for future.

H<sub>6</sub>: There is a statistically significant relationship (at 95% confidence interval) between the university of the participating students and their identification for the most important problem of the textile sector.

H<sub>7</sub>: There is a statistically significant difference (at 95% confidence interval) between the anxiety for future professional life and the university grade.

H<sub>8</sub>: There is a statistically significant difference (at 95% confidence interval) between the family income levels of the participating students and their anxiety for future.

H<sub>9</sub>: There is a statistically significant difference (at 95% confidence interval) between the satisfaction of the students and their reasons for preferring textile engineering.

H<sub>10</sub>: There is a statistically significant difference (at 95% confidence interval) between the anxiety of students for future and their reasons for preferring textile engineering.

H<sub>11</sub>: There is a statistically significant difference (at 95% confidence interval) between the anxiety and vision of the participating students for future.

H<sub>12</sub>: There is a statistically significant difference (at 95% confidence interval) between the future visions of the students and their opinions about economic crisis.

- H<sub>13</sub>: The satisfaction of the participating students for becoming textile engineers significantly differs in aspect of their universities at 95% confidence interval.
- H<sub>14</sub>: The satisfaction of the participating students for their education significantly differs in aspect of their universities at 95% confidence interval.
- H<sub>15</sub>: The satisfaction of the participating students for the technical and instructional opportunities differs in aspect of their universities at 95% confidence interval.
- H<sub>16</sub>: The satisfaction of the participating students for the laboratories and pilot mills differs in aspect of their universities at 95% confidence interval.
- H<sub>17</sub>: The satisfaction of the participating students for the technical visit activities at their department differs in aspect of their universities at 95% confidence interval.
- H<sub>18</sub>: The satisfaction of the participating students for school/enterprise training differs in aspect of their universities at 95% confidence interval.
- H<sub>19</sub>: The opinions of the students about the academician-student relationship differ in aspect of the universities at 95% confidence interval.
- H<sub>20</sub>: The habit of following professional issues (magazines, news and

other publications) significantly differs in students of different universities at 95% confidence interval.

- H<sub>21</sub>: The membership of professional associations and organizations significantly differs in students of different universities at 95% confidence interval.
- H<sub>22</sub>: The habit of following latest news/advances in textile sector significantly differs in students of different universities at 95% confidence interval.
- H<sub>23</sub>: There is a statistically significant difference (at 95% confidence interval) between the universities of the participating students and their beliefs for the efficiency of gender and physical appearance in making a good career.
- H<sub>24</sub>: There is a statistically significant difference (at 95% confidence interval) between the universities of the participating students and their beliefs for the hopeful future of textile sector.
- H<sub>25</sub>: There is a statistically significant difference (at 95% confidence interval) between the universities of the participating students and their anxiety for future.

There is a statistically significant difference between the participating women and men in aspect of preference for textile engineering (Alternate hypothesis H<sub>1</sub>) (Table 6). When compared to men, the women prefer textile engineering department much more willingly. In Turkey it is

believed that textile engineering is a much more appropriate profession for women. The findings of the present survey findings support this provision.

The reason for preferring textile engineering significantly associates with gender ( $\chi^2 = 30,767$ ,  $df = 5$ ,  $p = 0,000$ ) (Alternate hypothesis H<sub>2</sub>). Approximately 38% of women state that they have chosen this department willingly. In comparison, 28% of men have chosen textile engineering willingly whereas 24% has chosen accidentally and 22% has chosen due to the canalization of their families/friends. Willingness is a much more commonly encountered motive for women who have chosen to be textile engineers.

The foreign language knowledge of the participating students significantly differs in aspect of the universities (Alternate hypothesis H<sub>3</sub>) (Table 7). Accordingly, the textile engineering students in Ege University know much more languages than other students. The participating students from Ege University are followed by those of İstanbul Technical, Dokuz Eylül, S.Demirel, Gaziantep, Pamukkale, Uludağ, Erciyes, Çukurova, Uşak ve Sütçü İmam universities respectively. The students who are being educated by the universities with long standing background appear to know more foreign languages. Also textile engineering students who are being educated by the universities with high entrance scores seem to know more foreign languages.

**Table 6.** Preference rank for textile engineering in aspect of gender

	N	Mean	Std. Deviation	t	df	Sig. (2-tailed)
Women	1119	7,03	5,108	-4,368	1,651E3	,000
Men	841	8,15	5,934			

**Table 7.** Foreign language knowledge in aspect of textile engineering departments

	N	Mean	Std. Deviation	F	df <sub>1</sub>	df <sub>2</sub>	Sig.
Ege	324	1,44	0,593	6,926	10	1946	0,000
Dokuz Eylül	90	1,33	0,581				
Uşak	182	1,17	0,419				
Pamukkale	119	1,26	0,460				
S.Demirel	219	1,32	0,513				
Gaziantep	77	1,27	0,577				
Sütçü İmam	271	1,17	0,420				
Çukurova	237	1,20	0,462				
İTU	106	1,42	0,585				
Erciyes	64	1,22	0,519				
Uludağ	268	1,26	0,525				

There is a statistically significant relationship between the university of the participating students and their intentions for professional work after graduation ( $\chi^2 = 1,040E2$ ,  $df = 40$ ,  $p = 0,000$ ) (Alternate hypothesis  $H_4$ ). The students of Ege University want to work at production and marketing departments after graduation whereas the students of Dokuz Eylül, İstanbul Technical, Uludağ, Uşak, Pamukkale, Süleyman Demirel, Sütçü İmam universities want to work at production, marketing and research&development departments. Meanwhile the students of Gaziantep and Çukurova universities want to work at marketing and research&development department and the students of Erciyes University want to work in production, quality control and research&development. This discrepancy can be attributed to the fact that the students of Ege University receive more social lectures with respect to the students of other universities.

There is a statistically significant association between the university of the participating students and their vision for future ( $\chi^2 = 99,552$ ,  $df = 50$ ,  $p = 0,000$ ) (Alternate hypothesis  $H_5$ ). Most of the reviewed students consider themselves as workers/managers at textile sector in future. The majority of the students who visualize themselves as entrepreneurs in textile sector are being educated in Ege, Sütçü İmam and Uludağ universities. Similarly, most of the students who plan to be entrepreneurs in other sectors attend Ege, Sütçü İmam, Çukurova and Uludağ universities. On the other hand, most of the students who desire to be workers/managers in state sector are being educated in Ege, Uşak, Süleyman Demirel, Sütçü İmam, Uludağ and Çukurova universities.

There is a statistically significant relationship between the university of the participating students and their identification for the most important problem of the textile sector ( $\chi^2 = 1,307E2$ ,  $df = 50$ ,  $p = 0,000$ ) (Alternate hypothesis  $H_6$ ). Insufficient branding is the most significant problem of the textile sector according to the students of Ege, Sütçü İmam and İstanbul Technical universities. Meanwhile insufficient government assistance is the most important matter of the sector according to the students in Dokuz Eylül, Uşak, Pamukkale, Süleyman Demirel, Gaziantep, Çukurova, Erciyes and Uludağ universities.

There is a statistically significant difference between the anxiety for future professional life and the university grade (Alternate hypothesis  $H_7$ ) ( $F = 3,686$  ;  $df_1 = 3$  ;  $df_2 = 2003$  ;  $p = 0,012$ ). First grade students feel the least anxiety for future with respect to average score. As the grades advance, the anxiety for future grows. Last year students experience the highest anxiety for future. Oncoming graduation, anxiety of finding a job, increase in responsibility sensation and the situation of the sector after economic crisis all contribute the dramatical rise in anxiety for future.

There is a statistically significant relationship between the family income levels of the participating students and their anxiety for future (Alternate hypothesis  $H_8$ ) ( $F = 4,569$  ;  $df_1 = 3$  ;  $df_2 = 1945$  ;  $p = 0,003$ ). The students whose families have high level income have the least anxiety for future. This student group is respectively followed by those who have low, upper-intermediate and lower-intermediate family income.

There is a statistically significant association between the satisfaction of the students and their reasons for preferring textile engineering (Alternate hypothesis  $H_9$ ) ( $F = 59,939$  ;  $df_1 = 5$  ;  $df_2 = 1981$  ;  $p = 0,000$ ). The students who express the highest satisfaction for textile engineering are the ones who have preferred this discipline willingly. This student group is respectively followed by the students who have chosen textile engineering due to the canalization of their families/friends, the students who have been affected by their teachers, the students who have chosen textile engineering according to their scores at university entrance exams and the students who have accidentally chosen to be textile engineers. As the the willingness of students increases, their satisfaction mounts up.

There is a statistically significant relationship between the anxiety of students for future and their reasons for preferring textile engineering (Alternate hypothesis  $H_{10}$ ) ( $F = 12,816$  ;  $df_1 = 5$  ;  $df_2 = 1981$  ;  $p = 0,000$ ). The students who have the least anxiety about their future are the ones who have chosen this department willingly. This student group is respectively followed by the students who have chosen textile engineering due to the canalization of their families/friends, the students who have been affected by their teachers, the students who

have accidentally chosen to be textile engineers and the students who have chosen textile engineering according to their scores at university entrance exams. As the the willingness of students increases, their anxiety for future decreases.

There is a statistically significant association between the anxiety and vision of the participating students for future (Alternate hypothesis  $H_{11}$ ) ( $F = 9,669$  ;  $df_1 = 5$  ;  $df_2 = 1959$  ;  $p = 0,000$ ). The students who have the least anxiety about their future usually consider themselves as entrepreneurs of the textile sector in future. This student group is respectively followed by the students who plan to be entrepreneurs in other sectors, the students who desire to be workers/managers in textile sector, the students who refuse to work in any jobs, the students who want to be workers/managers in other sectors and the students who are willing to work in governmental organizations. As the spirit of entrepreneurship increases, future anxiety decreases.

There is a statistically significant relationship between the future visions of the students and their opinions about economic crisis (Alternate hypothesis  $H_{12}$ ) ( $F = 18,170$  ;  $df_1 = 5$  ;  $df_2 = 1959$  ;  $p = 0,000$ ). The students who mostly believe that the crisis will end usually visualize themselves as entrepreneurs in textile sector. This student group is respectively followed by the students who want to be workers/managers in textile sector, the students who are willing to work in state sector, the students who desire to be workers/managers in other sectors, the students who plan to be entrepreneurs in other sectors and the students who refuse to work in any jobs. As the willingness for participating in textile sector increases, the belief in a hopeful future for the textile sector gains strength.

The satisfaction of the participating students for becoming textile engineers significantly differs in aspect of their universities (Alternate hypothesis  $H_{13}$ ) ( $F = 2,861$  ;  $df_1 = 10$  ;  $df_2 = 2006$  ;  $p = 0,002$ ). The students that are mostly satisfied from being educated by a textile engineering department are in Süleyman Demirel University. This student group is respectively followed by textile engineering students in Ege, Dokuz Eylül, Çukurova, Uludağ, İstanbul Technical, Uşak, Sütçü İmam, Erciyes, Pamukkale and Gaziantep Universities.

The satisfaction of the participating students for their education significantly differs in aspect of their universities (Alternate hypothesis H<sub>14</sub>) (F=14,640 ; df<sub>1</sub>=10 ; df<sub>2</sub>=2006 ; p=0,000). The students that mostly join the idea of receiving a satisfactory education are in İstanbul Technical University. This student group is followed by the students of Dokuz Eylül, Ege, Gaziantep, Uludağ, Çukurova, Süleyman Demirel, Erciyes, Pamukkale, Sütçü İmam and Uşak Universities respectively.

The satisfaction of the participating students for the technical and instructional opportunities differs in aspect of their universities (Alternate hypothesis H<sub>15</sub>) (F=35,067 ; df<sub>1</sub>=10 ; df<sub>2</sub>=2006 ; p=0,000). The students that mostly join the idea of having sufficient technical and instructional opportunities are in Ege University. This student group is followed by the students of İstanbul Technical, Dokuz Eylül, Gaziantep, Süleyman Demirel, Çukurova, Erciyes, Sütçü İmam, Uludağ, Pamukkale and Uşak Universities respectively.

The satisfaction of the participating students for the laboratories and pilot mills differs in aspect of their universities (Alternate hypothesis H<sub>16</sub>) (F=56,179 ; df<sub>1</sub>=10 ; df<sub>2</sub>=2006 ; p=0,000). The students that mostly join the idea of having adequate laboratories and pilot mills are in Gaziantep University. This student group is followed by the students of Ege, Dokuz Eylül, Süleyman Demirel, İstanbul Technical, Çukurova, Erciyes, Pamukkale, Uludağ, Sütçü İmam and Uşak Universities respectively.

The satisfaction of the participating students for the technical visit activities at their department differs in aspect of their universities (Alternate hypothesis H<sub>17</sub>) (F=14,725 ; df<sub>1</sub>=10 ; df<sub>2</sub>=2006 ; p=0,000). The students that mostly agree with the adequacy of technical visit activities are in Gaziantep University. This student group is followed by İstanbul Technical, Dokuz Eylül, Erciyes, Sütçü İmam, Süleyman Demirel, Çukurova, Ege, Pamukkale, Uşak and Uludağ Universities respectively.

The satisfaction of the participating students for school/enterprise training differs in aspect of their universities (Alternate hypothesis H<sub>18</sub>) (F=2,716 ; df<sub>1</sub>=10 ; df<sub>2</sub>=2006 ; p=0,003). The students that mostly join the idea of having sufficient school/enterprise

trainings are in Ege University. This student group is followed by the students of Erciyes, İstanbul Technical, Çukurova, Uşak, Gaziantep, Dokuz Eylül, Süleyman Demirel, Sütçü İmam, Uludağ and Pamukkale Universities respectively.

The opinions of the students about the academican-student relationship differ in aspect of the universities (Alternate hypothesis H<sub>19</sub>) (F=9,388 ; df<sub>1</sub>=10 ; df<sub>2</sub>=2006 ; p=0,000). The students that mostly join the idea of having satisfactory academican-student relationship are in Dokuz Eylül University. This student group is followed by the students of Pamukkale, Gaziantep, Uludağ, Sütçü İmam, Süleyman Demirel, İstanbul Technical, Erciyes, Ege, Uşak and Çukurova Universities respectively.

The habit of following professional issues (magazines, news and other publications) significantly differs in students of different universities (Alternate hypothesis H<sub>20</sub>) (F=2,246 ; df<sub>1</sub>=10 ; df<sub>2</sub>=2006 ; p=0,013). Most of the students who claim of regularly following the professional issues are in İstanbul Technical University. This student group is followed by the students of Çukurova, Sütçü İmam, Erciyes, Uludağ, Süleyman Demirel, Ege, Dokuz Eylül, Uşak, Pamukkale and Gaziantep Universities respectively.

The membership of professional associations and organizations significantly differs in students of different universities (Alternate hypothesis H<sub>21</sub>) (F=10,358; df<sub>1</sub>=10 ; df<sub>2</sub>=2006; p=0,000). Most of the students who state that they are members of professional associations or organizations are in Sütçü İmam University. This student group is followed by the students of Dokuz Eylül, Pamukkale, Erciyes, Çukurova, Gaziantep, Ege, Süleyman Demirel, Uludağ, İstanbul Technical and Uşak Universities respectively.

The habit of following latest news/advances in textile sector significantly differs in students of different universities (Alternate hypothesis H<sub>22</sub>) (F=2,366; df<sub>1</sub>=10 ; df<sub>2</sub>=2006 ; p=0,009). Most of the the students who express that they follow the progressions/news related with the textile sector are in İstanbul Technical University. This student group is followed by the students of Pamukkale, Çukurova, Erciyes, Süleyman Demirel, Uludağ, Dokuz Eylül, Sütçü İmam, Ege, Uşak and Gaziantep Universities respectively.

There is a statistically significant association between the universities of the participating students and their opinions about the brandization of these universities/departments (Alternate hypothesis H<sub>23</sub>) (F=53,203 ; df<sub>1</sub>=10 ; df<sub>2</sub>=2006 ; p=0,000). The textile engineering department of İstanbul Technical University houses the majority of the students who state that their department/university is a brand and this fact would have a role in making a good career. This student group is followed by the students of Dokuz Eylül, Ege, Uludağ, Gaziantep, Çukurova, Erciyes, Pamukkale, Süleyman Demirel, Sütçü İmam and Uşak Universities respectively.

There is a statistically significant association between the universities of the participating students and their beliefs for the efficiency of gender and physical appearance in making a good career (Alternate hypothesis H<sub>23</sub>) (F=2,087; df<sub>1</sub>=10 ; df<sub>2</sub>=2006 ; p=0,022). Ege and Dokuz Eylül Universities house the majority of the students who believe that gender and physical appearance affects career. These student groups are followed by the students of Sütçü İmam, Süleyman Demirel, Uludağ, Uşak, İstanbul Technical, Erciyes, Çukurova, Pamukkale and Gaziantep Universities respectively.

There is a statistically significant association between the universities of the participating students and their beliefs for the hopeful future of textile sector (Alternate hypothesis H<sub>24</sub>) (F=2,365 ; df<sub>1</sub>=10; df<sub>2</sub>=2006 ; p=0,009). Gaziantep University houses the majority of the students who believe that the textile sector would be devoid of economic crisis in future. This student group is followed by the students of Süleyman Demirel, Dokuz Eylül, Çukurova, Uşak, Sütçü İmam, Erciyes, Uludağ, Pamukkale, Ege and İstanbul Technical Universities respectively.

There is a statistically significant association between the universities of the participating students and their anxiety for future (Alternate hypothesis H<sub>25</sub>) (F=1,866 ; df<sub>1</sub>=10 ; df<sub>2</sub>=2006 ; p=0,045). Dokuz Eylül University houses the majority of the students who agree with the absence of anxiety for future. This student group is followed by the students of Sütçü İmam, İstanbul Technical, Erciyes, Çukurova, Uşak, Süleyman Demirel, Gaziantep, Pamukkale, Ege and Uludağ Universities respectively.

## 7. RESULTS AND GENERAL ASSESSMENT

The results of the present survey which is conducted in 11 universities over 2017 students, yields significant information about textile education in Turkey as well as the demographic properties of textile engineering students and their visions for future. According to the results of the present survey;

1. The majority of the participating students have medium income families which are living in the developed regions of Turkey where per capita income is high (Table 2 and 3).
2. The majority of the participating students have graduated from Anatolian high schools and super high schools which provide better technical and instructional infrastructure.
3. Less than half of the participating students (43%) plan to get master degree after their graduation. This high rate indicates the ambitions and desires of the students in terms of self-improvement and making a rapid career. Also 35% of the participating students are hesitant about this issue, suggesting that they are in a search.
4. Approximately 65% of the participating students want to get a master degree in terms of management science.
5. Table 4 shows that 30% of the participating students want to work as a marketing staff or customer service representative. Meanwhile 70% of them want to work at the departments of production, research & development, planning and quality control.
6. Almost %62 of the participating students is content to be a textile engineering student (Table 5 explanations). However 40% of them are somehow dissatisfied with their situation (in aspect of

technical and instructional opportunities, content and style of lectures, trainings and student-academician relationships). This ratio is significantly high and demonstrates that the necessary precautions and regulations should be validated by department managers and academic members.

7. Almost 62% of the participating students believe that the textile sector will overcome the economic crisis whereas 45% of them are anxious about their future in professional terms (Table 5 explanations). This is an ominous situation which is related with the macroeconomic indicators and policies of the country.
8. One of the most important and mostly expected findings of the present study is that the participating students who have the highest satisfaction for being educated in a textile engineering department are the ones who have willingly preferred this department. These students also have the least anxiety for future and usually express their desire for becoming an entrepreneur in textile sector. The other students usually want to work as an engineer/manager at the textile sector.
9. The participating students who are mostly satisfied from being educated in a textile engineering department attend Süleyman Demirel, Ege and Dokuz Eylül Universities. Gaziantep, Pamukkale and Erciyes Universities house the participating students who are mostly dissatisfied from being educated in a textile engineering department.
10. The participating students who are mostly satisfied with the sufficiency of education attend İstanbul Technical, Dokuz Eylül and Ege Universities. Uşak and Sütçü İmam Universities house the participating students who are mostly

dissatisfied with the sufficiency of education.

11. The textile engineering department of İstanbul Technical, Dokuz Eylül and Ege Universities house the majority of the students who state that their department/university is a brand and this fact would have a role in making a good career.
12. The majority of the participating students believe that both the gender and physical appearance significantly affect the career in textile sector.
13. Ege and İstanbul Technical Universities house the majority of the students who believe that the textile sector would continue to be bothered by economic crises in future. Also Ege and Uludağ Universities house the majority of the students who have the highest anxiety for future.

The results of the survey indicate that textile engineering students are seriously affected by the macroeconomic alterations. Moreover these findings show that the difficulties and problems which are faced or going to be faced by the textile sector and the textile engineering students are due to these macroeconomic alterations. Another finding to be emphasized is that the textile engineering students have high expectations from their departments in terms of education, infrastructure, training and communication. That's why; the textile engineering departments should focus on developing strategies for meeting these expectations. Furthermore the textile engineer candidates should be correctly and exclusively informed about the textile sector so their anxiety for future would diminish and they would be able to make an appropriate decision about their working field.

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