

*Full Length Research Paper*

# **A study on the opinions of the students attending the Faculty of Technical Education regarding industrial internship**

**Şenol Okay<sup>1\*</sup> and Ismail Şahin<sup>2</sup>**

<sup>1</sup>Department of Machine Education, Faculty of Technical Education, Pamukkale University, Denizli, Turkey.

<sup>2</sup>Department of Machine Education, Faculty of Technical Education, Gazi University, Ankara, Turkey.

Accepted 3 June, 2010

**The purpose of this study is to determine the opinions of the students regarding industrial internship throughout their university education. The study has been devised as a survey. Sampling has been done among randomly chosen 254 students studying in the machine drawing and construction program at the Faculty of Technical Education (FTE) of five universities. The data collected via questionnaires have been fed into the computer and have been analyzed using a software program called SPSS 15.0 for windows. In the study, to determine the level of discrepancy regarding the opinions of the students according to their gender and whether they have received a job offer from the employer at the end of their internship period, independent groups T-test analysis has been used. Moreover, one-way analysis of variance (ANOVA) has been used to determine whether there are any significant discrepancies among the satisfaction levels of the students according to the universities they are attending. The findings obtained in the study have revealed that the opinions of the students regarding their industrial internship do not show significant discrepancies according to their genders. However, it can be noted that there is a linear correspondence between the students' satisfaction levels of their internships and job offers.**

**Key words:** Industrial internship, student satisfaction level, technical education.

## **INTRODUCTION**

Vocational and technical education is one of the most important factors throughout the development process of under-developed and developing countries. In a globalized world where there is fierce competition intensifying each day, industrial sector undoubtedly plays one of the most important roles in the sustainability of a nation's development. Therefore, being capable of training qualified human force, vocational and technical education is fore grounded in the development of this sector (Okay et al., 2010). It must be one of the main goals of the educational systems of these countries to educate individuals that can meet the current requirements of economy and

technology, that can make innovations and that can adapt to on going developments. This situation shows how important vocational and technical education actually is. When the development processes of developed countries are examined, it can be seen that they have greatly invested in qualified human force and that vocational technical education has served as a locomotive in the development of Industry, commerce and services. One of the most important factors that can measure how developed a country is the quality of the human resources that country holds. In general view, developed countries are in a state where they have educated the human resources required for national development. On the other hand, most of the underdeveloped countries are in serious trouble in educating the human capital necessary for their economies (Kepenekçi, 2007). It is mainly educational system's responsibility to

\*Corresponding author. E-mail: [senolokay@pau.edu.tr](mailto:senolokay@pau.edu.tr). Tel: +90 258 296 3067. Fax: +90 258 296 3263.

train and educate the human capital that can contribute to a nation's development. While educational system carries out its responsibilities, it regards its students as productive citizens and it prepares them for social life, professional world or further education (Aksoy, 1987, 1996).

Increasing competitive force by adapting to information society and technological developments and training labor force with the qualifications required by the labour market so as to reduce unemployment have steadily been gaining importance. Industrial corporations present such qualifications as knowledge and skills in production and keeping close track of technology as their basic requirements to be known beforehand (Binici and Ari, 2004). The need for vocational technical education in a society can be approached in terms of individual, social, economic, cultural and national aspects. Vocational and technical education is essential for putting natural resources into use, for making the human force productive and dynamic and for the unification of work and education (Alkan et al., 1994). While developed countries have been able to educate their human resources in desired qualities and quantities, most of the under-developed countries are in serious trouble in educating the human capital necessary for their economies (Ünal, 1996; Kurul, 2002).

Vocational and technical education can be defined as follows: "within the national educational system, along with industrial, agricultural and services sectors, all the activities related to planning, researching, developing, organizing and coordinating any type of vocational and technical education service together with its management, supervision and instruction (Alkan et al., 2001). In Western countries, vocational education is described as a process which aims at providing a career through artisanship or practical activities (Öçal, 2008). Vocational and technical education system is responsible for preparing human resources for the production system, as a result of which human capital that takes on a locomotive role in progress and development has been trained (Özgüven, 2001).

On the other hand, the goal of vocational technical education is generally to educate and train workforce to enable them to become qualified enough to be employed in industrial, commercial and service sectors and to give them the basic education they need to transfer to a department to continue their vocational education at a university level (Eşme, 2007). Yet, a country needs vocational technical education for several reasons, some of which are meeting the needs of the labour force market, improving the rate and quality of production, reducing unemployment, increasing competitive power in domestic and foreign markets, using resources more efficiently and rationally, and supporting the development of a fast, stable and healthy economy. Vocational technical education is also necessary for the efficient use of the natural resources in the country, a productive manpower

and the integration of education and work. This is a need with social, economic and cultural aspects. (Temel, 1996; Alkan et al., 2001). The main criterion for assessing effectiveness and productivity in education is the common target and unity between industry and schools. The reason for this is that the main purpose of education is, besides economic, social and cultural development, to make individuals happy. In developed countries, it is the aim of the educational system to bring up a young population who thinks studies and has artistic sensitivity and self-confidence (Hızlan, 1997). Mainly, it is the educational system's responsibility to train and educate the human capital that can contribute to a nation's development. While educational system carries out its responsibilities, it regards its students as productive citizens and it prepares them for social life, professional world or further education. Especially at middle school level, it tries to implement programs that are in integrity with individual and professional development (Kepenekçi, 2007).

Each country's vocational education, its policies, model and technique vary according to its people's characteristics, technologies applied in that country and their requirements. It is also important that the vocational education system be designed according to regional needs with the aim of training a technician who will be able to keep up with the rapid changes in the technological world, who will be well informed about the latest technologies, who will have the flexibility to adapt to innovations and branches related to his field and who will be efficient and productive. Technology, which keeps rapidly developing in various fields, poses a great challenge for especially those countries with limited resources and causes an increase in demand for manpower that has received higher quality vocational education (Balci, 1990).

At present, vocational technical education in Turkey is being provided at the middle school and university level. While the purpose at the high school level is to meet the needs of intermediary staff in vocational high schools and technical high schools, it is to educate technical and vocational candidate teachers in technical education faculties and vocational education faculties at a higher education level. In addition to this, vocational education through apprenticeship is also provided for those who start working after elementary school (Şahin et al., 2007). The ultimate goals of universities should be to contribute to their students' education in the best way they can and to maintain student satisfaction with the education they provide (Yenen and Gözlü, 2003; Taşçı, 1995; Eroğlu, 2002).

Whether nations can keep up with new technologies and apply them depends on the trained technical manpower. In order to increase efficiency in these applications which are changing and developing day by day, an effective vocational education should be given to the present manpower. Compared to developed countries,

developing countries are at a disadvantage because they have a shortage of manpower and resources in terms of development and application of technologies. In this case, for technology transfer and applications, developing countries need to train qualified and knowledgeable manpower with high quality vocational education (Balci, 1990).

One of the most important signs of the quality and effects of human resources is the figures related to productivity in that country. When statistics related to productivity are examined, it can be seen that Turkey does not perform well in this league. For example, while China has reached a five-fold productivity rate in 20 years, Turkey has been at a standstill. When the productivity rates are examined for the years between 1975 - 2002, this situation can be seen more clearly. During this 27 years period, as regards productivity, Ireland has gone 22 levels up; South Korea has gone 15 levels up whereas Turkey has gone only 1 level up (Table 1) (Saygılı et al., 2006).

Industrial internships are educational activities in which students participate in every phase of production in businesses of various scales and put into practice the skills and knowledge they have learnt at school, leading to permanently gained knowledge (Çelik, 2005). Internship generally involves activities that are included in the academic program and generally carried out in the related industrial field with the aim of reinforcing students' theoretical knowledge gained at school by doing applied work. While they do this work, students get the opportunity to get acquainted with the research and development activities of companies, their project work, their management organization and their production methods and applications. Internship should be regarded as an important opportunity for students to become familiar with different sectors (Parlar et al., 2008). A basic element of vocational and technical education and a major sign of the co-operation between university and industry, internship is a process combining theoretical and applied education received at school and practical experience at business enterprises (Aydoğan, 2002).

These internships which can be done at various levels including undergraduate students, which, as a result, contributes to educating individuals who can use technology, who can produce and who have gained knowledge and talent (Korkmaz, 2005). Internships that are done in the industrial sector benefits students by providing them with experience in the field they are studying, with the ability to associate between theoretical knowledge and industrial applications and with views concerning their future career choices. Moreover, it benefits employers by providing them with low-cost technical staff who will be working in the sector after completing their education, who have a little experience and who have an idea of the sector. In general, students can do their internships either full-time during the summer or part-time during the academic year. The duration of internship around the world is 6-12 weeks on average, but there can be longer or

shorter intern-ships, too (Parlar et al., 2008). While giving the students an opportunity to develop their skills, internship also helps them learn business relations, understand business structures and the work being done and observe the relationships among business activities with real life examples (Uzay, 2005).

Internship plays an important role in getting to know the sector and business life as well as suggesting whether the student will be working in the profession. Based on the relationship among school, employer/enterprise and student, internship is a student's first step into his or her professional life (Önder, 2005). Internships generally aims at developing students' applied skills, giving them the benefit of technological advances and providing them with management experience. Moreover, improving students' certain individual traits such as communication skills and decision making abilities are also targeted.

### Research goals

The purpose of this study is to determine the opinions of the students regarding the industrial internships they have completed. In line with the general aim of the study, the following problems have also been addressed:

- (1) In what ways is an industrial internship beneficial to students?
- (2) Do the opinions of the students regarding industrial internship vary according to gender?
- (3) Do the opinions of the students regarding industrial internship vary depending on whether they receive a job offer at the end of their internship period?
- (4) Do the opinions of the students regarding industrial internship vary according to the university they are attending?

### METHOD

In this study, data collected via a survey have been made use of in order to follow a descriptive method. The subjects of the study consist of 254 senior students attending the machine drawing and construction program in the 2008-2009 academic year at the Faculty of Technical Education at Afyon Kocatepe University, Gazi University, Düzce University, Süleyman Demirel University and Karabük University. All of these students have completed their industrial internships. Although all these education programs, where the survey was conducted, provide the same education as regards the content, the programs at Karabük University, Mersin University FTE in Tarsus, Marmara University, Süleyman Demirel University and Düzce University are called Design and Construction Education whereas the ones at Afyon Kocatepe University and Gazi University are called Machine Drawing and Construction Education (SSPC, 2009), the name under which this study also analyzes the department.

The data collected through the questionnaires have been analyzed using SPSS 15.0 (SPSS, Inc., Chicago, Illinois). In order to evaluate the findings obtained from the responses, frequency, mean and standard deviation have been made use of. In the study, to determine the level of discrepancy of students' opinions according to their genders and whether they have received a job

**Table 1.** Development of productivity level of countries (USA = 100).

1975 Order	2002 Order	Country	Changes in ranking
1	10	Swiss	-
2	1	Luxembourg	+
3	4	USA	-
4	7	Nederland	-
8	13	Canada	-
11	9	France	+
9	12	Australia	-
20	23	Greece	-
22	28	Argentina	-
24	2	Ireland	+
25	31	Mexico	-
38	46	Jamaica	-
40	25	South Korea	+
41	40	Turkey	+
43	32	Malaysia	+
45	44	Egypt	+
48	48	India	0
49	45	China	+

offer from the employer at the end of the internship period, independent groups t-test analysis has been used. Moreover, to determine whether there are any discrepancies among the satisfaction levels of the students according to the university they are attending, one-way analysis of variance (ANOVA) has been carried out. In order to determine which possible discrepancies occur among which groups, Tukey-HSD Test has been used. The significance level has been taken as  $p < 0.05$  to test the discrepancy levels among groups. A five-degree preference scale has been used in responses to the items on the data collection material. The range of the responses has been designed as follows: 1 (strongly disagree, 1.00-1.80), 2 (disagree, 1.81-2.60), 3 (undecided, 2.61-3.40), 4 (agree, 3.41 - 4.20) and 5 (strongly agree, 4.21 - 5.00) (Tekin, 1993).

### Reliability tests and validity tests

The data in this survey have been collected by a measuring scale developed by the researchers. To this end, first, the researchers have looked into some literature related to the issue and interviewed students attending the department of machine construction and drawing. The study has been carried out on a voluntary basis. The preliminary application of the scale has been carried out on 148 students. In the reliability study carried out, the Cronbach's Alpha coefficient has been calculated as 0.80 and the total item correlations have been found to range between 0.31 and 0.57. According to this, it can be stated that the measurements obtained from the scale in the preliminary application have yielded quite reliable results. ( $0.80 \leq \alpha < 1.00$  the scale is highly reliable) (Özdamar, 2002). Factor analysis has been carried out to check the validity of the scale. As a result of rotation, the 21-item scale used in the students' satisfaction levels of internship has been reduced to a scale consisting of 5 main items. The factor loadings and Eigen values as regards these factorial dimensions have been

represented in the Tables. The Eigen value shows the ratio of the between-groups sum of squares to that of the within-groups sum of squares.

The matrix obtained has been analyzed with the method of principle component analysis. Each item in the matrices formed during factor analysis is the factor loading indicating the correlation between each variable and each factor. By eliminating those variables with very low correlation a lower factorial dimension and a more detailed variance explanation have been obtained. Those values 0.4 and below have not been included in the table. The analysis made through factor analysis should also be evaluated by Kaiser-Mayer-Olkin (KMO) test. In KMO test, values 0.5 and above suggest that the sample is inadequate for measurement and that the analysis can be applied on the factors. Similarly, Bartlett test also needs to yield a score lower than 0.05. Table 2 displays the mean, standard deviation and factor loadings of the five factorial dimensions.

Factor 1; Factor loadings range from 0.759 (item 15) to 0.629 (item 18). When the rotation values are examined, it can be seen that they account for the 18.659% of the total variance, which shows that the best data cluster is in Factor 1 with an intrinsic value of 3.918. Taking into consideration the contents of the items in the sub category, this factor can be named as "The benefits of industrial internship".

Factor 2; Factor loadings range from 0.709 (item 11) to 0.548 (item 12). When the rotation values are examined, it can be seen that they account for the 11.344% of the total variance. Its intrinsic value is 2.382. Taking into consideration the contents of the items in the sub category, this factor can be named as "The advantages of industrial internship".

Factor 3; Factor loadings range from 0.679 (item 3) to 0.498 (item 2). When the rotation values are examined, it can be seen that they account for the 10.199% of the total variance. Its intrinsic value is 2.142. Taking into consideration the contents of the items in the sub category, this factor can be named as "The conditions of the place of internship".

Factor 4; Factor loadings range from 0.799 (item 7) to 0.420 (item 1). When the rotation values are examined, it can be seen that they account for the 8.713% of the total variance. Its intrinsic value is 1.830. Taking into consideration the contents of the items in the sub category, this factor can be named as "The procedures for industrial internship".

Factor 5; Factor loadings range from 0.768 (item 19) to 0.562 (item 21). When the rotation values are examined, it can be seen that they account for the 8.022% of the total variance. Its intrinsic value is 1.685. Taking into consideration the contents of the items in the sub category, this factor can be named as "Industrial internship education".

The Eigen values before removing factors and after rotation have been shown in Table 3. Five factors have been found to show Eigen values that are greater than 1. While the first factor explains the 31% of the variance, rotation equalizes the relative significance of the factors (the contribution of factor 1 has reduced the variance from 31 to 18%) Five factors account for more than half of the total variance (56.935%).

As can be seen in Table 4, the result of the Bartlett test, conducted in order to determine whether the amount of sampling is sufficient, was 0.878. This result shows that the data can be used in factor analysis (1.00 < 0.90 perfect, 0.90 < 0.80 good, 0.80 < 0.70 satisfactory, 0.70 < 0.60 weak, 0.60 < bad) (Yurdagül, 2010).

The Bartlett test original correlation matrix is identical to the identity matrix (all correlation coefficients are zero) and it tests the null hypothesis. It is important that this test come out significant. Otherwise, a reverse condition would imply that there is no relationship among the variables (Tonta, 2008). As a matter of fact, as can be observed in Table 4, this value has been calculated as zero (0.000) and therefore the result has been accepted as significant.

Factorial structure of entrepreneurial ability test is given in

**Table 2.** Factor analysis regarding the variables.

<b>Factors</b>	<b>X</b>	<b>S</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Fac1</b>							
VAR00015	3.7717	1.0152	0.759				
VAR00016	3.8386	0.9828	0.755				
VAR00014	3.7087	1.0067	0.742				
VAR00017	3.6063	1.0149	0.647				
VAR00013	3.8110	0.9553	0.637				
VAR00018	3.5866	0.9608	0.629				
<b>Fac2</b>							
VAR00011	3.6496	0.9857		0.709			
VAR00009	3.5551	1.1329		0.699			
VAR00010	3.7323	1.0094		0.662			
VAR00012	3.6024	1.0346		0.548			
<b>Fac3</b>							
VAR00003	3.7047	1.0722			0.679		
VAR00005	3.6142	1.0635			0.677		
VAR00006	3.5039	1.0282			0.628		
VAR00002	3.4803	1.0878			0.498		
<b>Fac4</b>							
VAR00007	3.1378	1.1284				0.799	
VAR00008	2.5354	1.2014				0.786	
VAR00004	2.5827	1.2316				0.520	
VAR00001	2.5827	1.3770				0.420	
<b>Fac5</b>							
VAR00019	3.3386	1.1743					0.768
VAR00020	3.4724	1.1304					0.564
VAR00021	3.3898	1.1183					0.562

**Table 3.** Variance explanation for the results of the factor analysis.

<b>Component</b>	<b>Initial eigen values</b>			<b>Extraction sums of squared loadings</b>			<b>Rotation sums of squared loadings</b>		
	<b>Total</b>	<b>% of Variance</b>	<b>Cumulative %</b>	<b>Total</b>	<b>% of Variance</b>	<b>Cumulative %</b>	<b>Total</b>	<b>% of Variance</b>	<b>Cumulative %</b>
1	6.598	31.420	31.420	6.598	31.420	31.420	3.918	18.659	18.659
2	1.784	8.494	39.913	1.784	8.494	39.913	2.382	11.344	30.002
3	1.353	6.445	46.358	1.353	6.445	46.358	2.142	10.199	40.201
4	1.158	5.515	51.873	1.158	5.515	51.873	1.830	8.713	48.913
5	1.063	5.062	56.935	1.063	5.062	56.935	1.685	8.022	56.935
6	0.971	4.623	61.558						
7	0.920	4.382	65.940						
8	0.860	4.097	70.038						
9	0.770	3.667	73.705						
10	0.718	3.417	77.121						
11	0.596	2.837	79.958						
12	0.581	2.769	82.727						
13	0.572	2.723	85.451						

**Table 3.** Contd.

14	0.525	2.501	87.951
15	0.457	2.176	90.128
16	0.453	2.156	92.283
17	0.375	1.788	94.071
18	0.372	1.773	95.844
19	0.329	1.568	97.411
20	0.293	1.397	98.808
21	0.250	1.192	100.000

**Table 4.** KMO and Bartlett's test regarding the factor analysis.

Kaiser-Meyer-Olkin proficiency testing samples	0.878
Bartlett's test of sphericity	Approx. Chi-square 1816.512
	df 210
	Sig. 0.000

Figure 1, shows the model. As shown in Figure 1, item factor loadings of 0.42 (item 01) and 0.79 (item 07) varies between.

## RESULTS AND DISCUSSION

### Demographic profiles of respondents

The demographic profiles of the subjects can be seen in Table 5. Of the students who participated in the survey, 26% are from Gazi University, 20.1% are from Afyon Kocatepe University, 22.8% are from Karabük University, 18.9% are from Düzce University and 12.2% are from Süleyman Demirel University 65.7% of the students who took part in the study were male and 34.3% were female 44.5% of the students were regular high school graduates, 24.4% were vocational high school graduates, 18.1% were Anatolian technical high school graduates and 13% were technical high school graduates. It has been discovered that nearly half (44.5%) of the students attending machine drawing and construction education program, where the survey was carried out, started this program directly without any prior vocational education. After completing their internships, 39.4% of the students received job offers from the businesses where they did their internships. It is remarkable to see students with little work experience to show such good performance and receive good job offers.

### Evaluation of the findings regarding industrial internship

In this section, opinions of the participants concerning the industrial internships they have completed have been presented. When the findings in Table 6 are examined in terms of the benefits of industrial internship, it can be

observed that the students have marked "agree" and "strongly agree" for the following two items: "Probation provided opportunities related to my field has to use modern tools and techniques" (72%), and "Probation provided more information on current topics "(69.7%). The evaluation concerning the benefits of internship as a whole is "I agree" ( $\bar{x}$  =3.71). All of the statements have been marked as "I agree" by the students. It can be stated that industrial internship enables students to put into practice the theoretical knowledge they have learned at school and to use and get acquainted with new instruments and equipment. Furthermore, it can be said that it provides an opportunity for the students to bring their knowledge about current issues up to date.

When the findings in Table 7 are examined in terms of the advantages of industrial internship, it can be observed that the students have marked "agree" and "strongly agree" for the following three items: "The internship helped me realize professional and ethical responsibilities" (65.7%), and "The internship improved my oral communication skills"(61.4%). "The internship helped me realize the necessity of a life-long education" (61%). The evaluation concerning the ad-vantages of internship as a whole is "I agree" ( $\bar{x}$  =3.63). All of the statements have been marked as "I agree" by the students. Along with theoretical education, applied studies are also provided at FTE's. In the project work carried out at school, applied work can be done at a small scale in accordance with the facilities available. In the light of the information obtained from Table 7 it can be concluded that industrial internship is beneficial for students to adapt to real business world.

When the findings in Table 8 are examined in terms of the conditions of the workplace, it can be observed that the students have marked "agree" and "strongly agree" for the following two items: "At the workplace where I did my internship, the number of the employees working in my field was sufficient" (66.5%) and "At the workplace where I did my internship, the employees working in my field were proficient" (59.5%). However, the students have marked "disagree" and "strongly disagree" for the following two items: "The training I received during internship was in parallel with the according to the relative weight of internship subjects" and "There is no incompatibility between the requirements mentioned in the

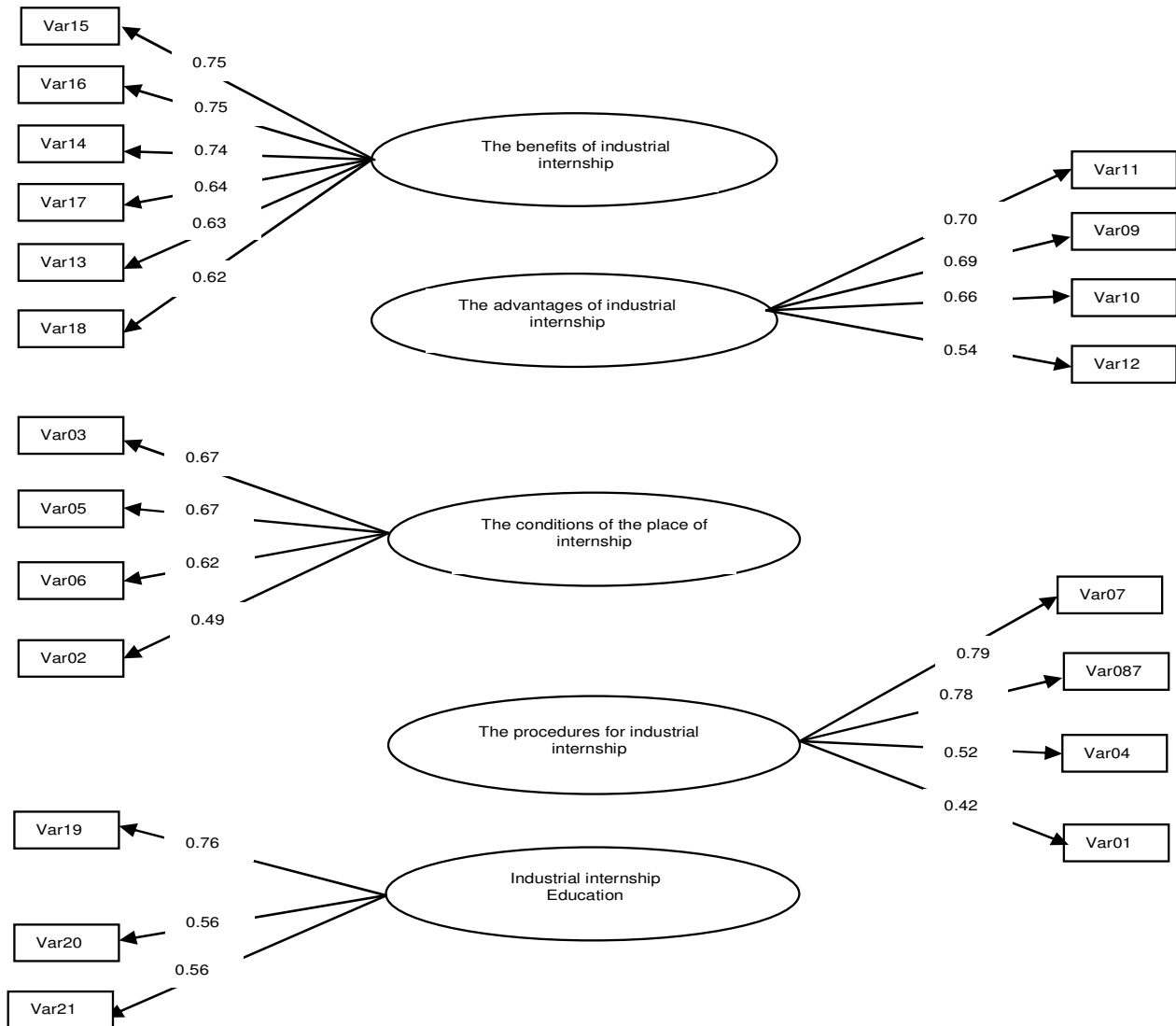


Figure 1. Factor analysis results.

Table 5. Demographic findings regarding the participants.

Variables		Frequency	Percentage
Universities	Gazi University	66	26.0
	Kocatepe University	51	20.1
	Süleyman Demirel University	31	12.2
	Karabük University	58	22.8
	Düzce University	48	18.9
Total		254	100.0
Gender	Male	167	65.7
	Female	87	34.3
Total		254	100.0
Graduated High School	High School	113	44.5
	Technical High School	33	13.0
	Vocational High School	62	24.4

		Anadolu Technical High School	46	18.1
Total			254	100.0
Post-internship job offers	Yes		100	39.4
	No		154	60.6
Total			254	100.0

**Table 6.** The distribution of the students' opinions as regards the benefits of industrial internship.

The benefits of Industrial Internships	Strongly disagree		Disagree		Undecided		Agree		Strongly agree		Total	$\bar{X}$	S	
	f	(%)	f	(%)	f	(%)	f	(%)	f	(%)				
Probation provided more information on current topics.	11	4.3	17	6.7	49	19.3	119	46.9	58	22.8	254	100	3.77	1.01
Probation provided opportunities related to my field has to use modern tools and techniques.	9	3.5	15	5.9	47	18.5	120	47.2	63	24.8	254	100	3.83	.98
Probation provided directions to my ideas business life in future.	9	3.5	24	9.4	50	19.7	150	47.2	51	20.1	254	100	3.70	1.00
Probation provided the opportunity to see areas that I was missing	11	4.3	26	10.2	56	22	120	47.2	41	16.1	254	100	3.60	1.01
Probation contributed transform from my theoretical knowledge to practical.	8	3.1	12	4.7	60	23.6	114	44.9	60	23.6	254	100	3.81	.95
Probation acquired to ability using and planning time efficiently.	9	3.5	25	9.8	62	24.4	124	48.8	34	13.4	254	100	3.58	.96
											Total		3.71	0.98

**Table 7.** The distribution of the students' opinions as regards the advantages of industrial internship.

The benefits of Industrial Internships	Strongly disagree		Disagree		Undecided		Agree		Strongly agree		Total	$\bar{X}$	S	
	f	(%)	f	(%)	f	(%)	f	(%)	f	(%)				
Internship helped to perceive necessity of lifelong learning programmes.	11	4.3	26	10.2	62	24.4	109	42.9	46	18.1	254	100	3.60	1.03
Internship acquired oral communication ability.	7	2.8	25	9.8	66	26	108	42.5	48	18.9	254	100	3.64	.98
Internship acquired to ability of disciplinary team work.	19	7.5	23	9.1	61	24	100	39.4	51	20.1	254	100	3.55	1.13
Internship provided awareness about vocational of responsibility and ethical.	11	4.3	15	5.9	61	24	111	43.7	56	22	254	100	3.73	1.00
											Total		3.63	1.03

internship handbook and the workplace itself (18.1%). All of the statements have been marked as "I agree" by the students ( $\bar{X}$  =3.57). It can be sated that the conditions of the workplace where students have done their industrial internships have generally met their expectations. Yet,

about 20% of the students have expressed that they cannot receive training in accordance with the subjects. Moreover, 20% of the students have mentioned that the conditions their schools require from the workplace and those of the actual workplace do not match.



**Table 8.** The distribution of the students' opinions as regards the conditions of the workplace.

Conditions of the industry Internships place	Strongly disagree		Disagree		Undecided		Agree		Strongly agree		Total	$\bar{X}$	S		
	f	(%)	f	(%)	f	(%)	f	(%)	f	(%)					
There too many people that were related to field in internships area	9	3.5	32	12.6	44	17.3	109	42.9	60	23.6	254	100	3.70	1.07	
Proficiency level of employees in an probation in my vocational field was good	10	3.9	29	11.4	64	25.2	97	38.2	54	21.3	254	100	3.61	1.06	
According to the weight of probation training in topics I trained.	9	3.5	37	14.6	63	24.8	107	42.1	38	15	254	100	3.50	1.02	
Probation guide with the desired qualification is no mismatch between their training	15	5.9	31	12.2	67	26.4	99	39	42	16.5	254	100	3.48	1.08	
													Total	3.57	1.05

**Table 9.** The distribution of the students' opinions as regards the procedures of the internship.

Procedures of industrial internship	Strongly Disagree		Disagree		Undecided		Agree		Strongly Agree		Total	$\bar{X}$	S		
	f	(%)	f	(%)	f	(%)	f	(%)	f	(%)					
Internship file is more detailed	21	8.3	51	20.1	86	33.9	64	25.2	32	12.6	254	100	3.13	1.12	
internships workplace manager had difficulty filling the internship file	60	23.6	74	29.1	59	23.2	46	18.1	15	5.9	254	100	2.53	1.20	
Internships workplace I have difficulty in receiving information in my field	59	23.2	72	28.3	57	22.4	48	18.9	18	7.1	254	100	2.58	1.23	
I have difficulty in finding an internship workplace	71	28	72	28.3	33	13	48	18.9	30	11.8	254	100	2.58	1.37	
													Total	2.70	1.23

When the findings in Table 9 are examined in terms of the procedures of the internship, it can be observed that the students have marked "disagree" and "strongly disagree" for the following three items: "The manager had a difficult time filling in the internship papers in the folder" (52.7%), "I had difficulty obtaining information related to my field at the workplace" (51.5%) and "I had difficulty finding a workplace to do my internship" (51.3%). The evaluation concerning the procedures of internship as a whole is "undecided" ( $\bar{X} = 2.70$ ). While the students seem to have undecided regarding the details of the internship folder ( $\bar{X} = 3.13$ ), they seem to disagree with the other three statements ( $\bar{X} = 2.53$ ,  $\bar{X} = 2.58$ ,  $\bar{X} = 2.58$ ). It can be concluded that the students do not experience to encounter many problems in terms of the procedures of internship.

When the findings in Table 10 are examined in terms of the procedures of the internship, it can be observed that the students have marked "agree" and "strongly agree" for the following two items: "The employees at the workplace showed interested in my training" (56.3%) and

"The internship has covered subjects parallel to the ones at school" (52%). On the other hand, approximately one-fifth of the students have marked the statements "disagree" or "strongly disagree" The evaluation concerning the procedures of internship as a whole is "I agree".

#### Findings as to whether students' opinions regarding the sub dimensions of the industrial internship scale differ according to their gender

Table 11 displays the findings as to whether students' opinions regarding the sub dimensions of the industrial internship scale differ according to their gender.

As can be seen in Table 11, according to gender, no significant discrepancies have been found among the opinions of the students regarding industrial internship [t(252)= -1.131; p>.05], [t(252)= -1.290; p>.05], [t(252)= -1.805; p>.05], [t(252)= 0.517; p>.05], [t(252)= -1.352; p>.05]. In other words, it can be said that both male and female students share similar or same opinions related to

**Table 10.** The distribution of the students' opinions as regards internship training.

Industrial internship training	Strongly disagree		Disagree		Undecided		Agree		Strongly agree		Total	$\bar{X}$	S	
	f	(%)	f	(%)	f	(%)	f	(%)	f	(%)				
Time course of the internship was enough	21	8.3	43	16.9	59	23.2	91	35.8	40	15.7	254	100	3.33	1.17
Employees have been worked in my probation area interested in training with an education enough.	19	7.5	29	11.4	63	24.8	99	39	44	17.3	254	100	3.47	1.13
I got a probation in parallel with education issues have been covered.	19	7.5	33	13	70	27.6	94	37	38	15	254	100	3.38	1.11
	Total												3.39	1.13

**Table 11.** T-test results regarding the sub dimensions of the industrial internship scale according to differences in gender.

Items	Gender	N	$\bar{X}$	S	t	Sig.
The benefits of industrial internship	Male	167	3.68	0.81	-1.131	0.259
	Female	87	3.79	0.63		
To bring in industrial internship	Male	167	3.58	0.84	-1.290	0.198
	Female	87	3.72	0.76		
Conditions in industry Internship workplace	Male	167	3.51	0.75	-1.805	0.072
	Female	87	3.68	0.66		
Procedures of industry internship	Male	167	2.72	0.81	.517	0.606
	Female	87	2.67	0.85		
Industrial internship training	Male	167	3.34	0.84	-1.352	0.178
	Female	87	3.49	0.79		

\*The mean difference is significant at the .05 level.

their industrial internship. Therefore, it can be concluded that there is no variable that can make a difference in their opinions regarding industrial internship.

Table 12 displays the findings regarding the sub dimensions of the industrial internship scale according to whether students have received job offers at the end of the program. When the findings are examined, in the evaluations of the statements "Benefits of the industrial internship" [ $t(252) = 3.473$ ;  $p < 0.05$ ], "Advantages of the industrial internship" [ $t(252) = 3.031$ ;  $p < 0.05$ ] and "Conditions of the workplace" [ $t(252) = 2.304$ ;  $p < 0.05$ ] and "Industrial internship training" [ $t(252) = 2.694$ ;  $p < 0.05$ ] significant discrepancies have been found between those who have been offered jobs and those who have not at the end of the internship program whereas no such discrepancies have been discovered in the item "Industrial internship procedures" [ $t(252) = 0.147$ ;  $p > 0.05$ ]. In all the significant differences that emerged, it is seen that those students who received job offers from the

companies where they performed their internships displayed higher levels of contentment compared to those who did not. It seems the fact that the students successfully adapted to their internship programs, that they took the program seriously and that they were enthusiastic about gaining more experience in their job has led to their benefiting considerably from the internship program. As a result, those students whose disciplined attitudes were appreciated by the employers got job offers from them. It can be concluded that there is a linear relationship between the contentment level of the students with the internship program and their receiving job offers.

#### Findings as to whether students' opinions about the sub dimensions of the internship scale differ according to the university they are attending

Table 13 displays the findings as to whether students'

**Table 12.** T-test results regarding the sub dimensions of the industrial internship scale according to whether students have received job offers.

Items	Gender	N	$\bar{X}$	S	t	Sig.
The benefits of industrial internship	Male	100	3.92	0.67	3.473	0.001*
	Female	154	3.59	0.77		
To bring in industrial internship	Male	100	3.83	0.81	3.031	0.003*
	Female	154	3.51	0.80		
Conditions in industry Internship workplace	Male	100	3.70	0.74	2.304	0.022*
	Female	154	3.49	0.70		
Procedures of industry internship	Male	100	2.61	0.78	1.454	0.147
	Female	154	2.77	0.85		
Industrial internship training	Male	100	3.57	0.76	2.694	0.008*
	Female	154	3.29	0.85		

\*The mean difference is significant at the

**Table 13.** Findings regarding the differences in students' opinions about the sub dimensions of the internship scale according to the university they are attending.

Dimensions	University	N	$\bar{X}$	S	F	Sig.
The benefits of industrial internship	Gazi University	66	3.70	0.79	1.618	0.170
	Kocatepe University	51	3.79	0.70		
	Süleyman Demirel University	31	3.89	0.64		
	Karabük University	58	3.52	0.67		
	Düzce University	48	3.79	0.90		
	Total	254	3.72	0.75		
	To bring in industrial internship	Gazi University	66	3.65		
Kocatepe University		51	3.65	0.90		
Süleyman Demirel University		31	3.61	0.79		
Karabük University		58	3.55	0.68		
Düzce University		48	3.69	0.85		
Total		254	3.63	0.82		
Conditions in industry internship workplace		Gazi University	66	3.51	0.64	0.378
	Kocatepe University	51	3.66	0.77		
	Süleyman Demirel University	31	3.57	0.60		
	Karabük University	58	3.53	0.69		
	Düzce University	48	3.61	0.89		
	Total	254	3.57	0.72		
	Procedures of industry internship	Gazi University	66	2.78	0.92	
Kocatepe University		51	2.60	0.80		
Süleyman Demirel University		31	2.94	0.66		
University						

Table 13. Contd.

	Karabük University	58	2.64	0.82		
	Düzce University	48	2.64	0.80		
	Total	254	2.70	0.82		
Industrial internship training	Gazi University	66	3.32	0.86	0.463	0.763
	Kocatepe University	51	3.50	0.97		
	Süleyman Demirel University	31	3.48	0.82		
	Karabük University	58	3.37	0.68		
	Düzce University	48	3.35	0.81		
	Total	254	3.40	0.83		

The mean difference is significant at the 0.05 level.

opinions about the sub dimensions of the internship scale differ according to the university they are attending. Table 13 displays the findings regarding the differences in students' opinions about the sub dimensions of the internship scale according to the school they are attending. When the findings are examined, no significant discrepancies have been found in any of the factor in terms of the university variable [ $F(4,249) = 1.618$ ;  $p > 0.05$ ], [ $F(4,249) = 0.215$ ;  $p > 0.05$ ], [ $F(4,249) = 0.378$ ;  $p > 0.05$ ], [ $F(4,249) = 1.116$ ;  $p > 0.05$ ], [ $F(4,249) = 0.463$ ;  $p > 0.05$ ]. In all the universities, similar means have been revealed in the evaluations of the students who have completed their internship programs. Thus, it can be concluded that the university being attended is not a variable which would create a significant difference in the evaluation of the internship program.

## Conclusion

The following results have been obtained through the survey conducted among those FTE students who have completed their internships: During their internship programs students have had the opportunity to make use of new technology and modern equipment related to their fields. In this way, they have been able to notice their professional shortcomings in terms of theory and practice. Theoretical knowledge gained in school has been put into practice during internship, making up for the lack of practice at school. One of the main reasons for the high rates of young unemployed people is that young people are declined by businesses due to their lack of experience. On the other hand, in developed countries an effective application system provides young people with better chances of finding jobs (ILO, 2009).

Industrial internship has enabled them to have more concrete ideas about the work life they will be entering after university. In line with this, there has been an increase in students' awareness of using their time more efficiently. One of the important attitudes adopted during internship is life-long learning. It is also believed that

students have developed their senses of understanding ethical responsibilities. It can be said that students have gained a lot of experience in their skills regarding working as a team, which will contribute to them a lot when they start working. It should also be noted that students have considerably improved their communication skills.

As a whole, it has been discovered that students hold positive opinions as regards the conditions of the work places they did their internships at. They have stated that the number of the employees at the workplace was sufficient and that they were also proficient in their fields. However, approximately one-fifth of the students have noted that the training they received was not in line with the subjects they were studying and that the conditions in the work places did not meet the required standards. According to Töre (2007), some institutions in the private and public sector regard having students do internship as a "burden" and so they become reluctant. Aydagül (2006) also mentions the fact that interns do not receive the importance they deserve at these places.

Nearly half of the students find the internship files too detailed. On the other hand, three-fourths of the students do not seem to encounter any problems regarding finding a workplace to do their internship and being provided with enough knowledge about their fields. Kudatgobilik (2007) states that school administrations are inadequate at showing enough effort to facilitate student contact with businesses.

Students have stated that, in general, the duration of the internship program was sufficient that the employees at the workplaces where they did their internship showed interest in their training. In his study, Ata (2007) points to the fact that the duration of the internship program is actually insufficient to meet the amount of experience needed in real business life. On the other hand, students think that the internship program covers the subjects that are being taught at school. However, about one-fifth of the students do not hold a positive opinion on this issue. Binici and Arı (2004) have pointed out that internship practice still has not been put on a legal basis, lowering the quality of the students' internship performance.

Based on the gender variable, there is no significant discrepancy in students' opinions regarding industrial internship. It can be said that gender is not a variable which causes significant discrepancies among students' opinions regarding industrial internship. It has been discovered that those students who received job offers from the companies where they performed their internships displayed higher levels of contentment compared to those who did not. It seems the fact that the students successfully adapted to their internship programs, that they took the program seriously, and that they were enthusiastic about gaining more experience in their job has led to their benefiting considerably from the internship program. As a result, those students whose disciplined attitudes were appreciated by the employers got job offers from them. It can be concluded that there is a linear relationship between the contentment level of the students with the internship program and their receiving job offers. In all the universities, similar means have been revealed in the evaluations of the students who have completed their internship programs. Thus, it can be concluded that the university being attended is not a variable which would create a significant difference in the evaluation of the internship program.

As a result of the findings obtained in the study conducted among those FTE machine drawing and construction students who have completed their internship programs, the following suggestions can be made:

- (1) The department (internship committee) needs to play a more active role in helping students find a workplace to do their internship
- (2) With the help of the internship committee the efficiency of workplaces can be assessed and those that fulfill the required conditions can be given priority.
- (3) Workplaces where students will be doing their internships can be assessed by taking into consideration the number of the staff, their qualifications and their interest level in students' training.
- (4) The internship file can be revised and simplified.
- (5) Throughout their internship students can be supervised by the internship committee. The inspection of the workplaces does not have to be at a time when students are working. Moreover, managers can be contacted through e-mails or telephone. However, in order for this to be done, the workplace needs to have become institutionalized. Guiding students towards institutionalized firms would enable supervision to be more effective.
- (6) In order for students to be able to receive job offers from the businesses where they do their internships, by taking into consideration the opinions of the these businesses, some revisions should be made as regards the qualities the students should possess.
- (7) Theoretical knowledge given at school and applied work done at the workplace should be design in such a

way so as to eliminate the lack of basic skills seen in students. To this end, for the future, it is essential to take enhancement of skills and abilities as a basis in the syllabus, to provide the opportunity for the students to receive high-quality education, to create cooperation between schools and businesses and to apply methods that would help students adopt the life-long learning philosophy.

(8) Paying students throughout their internships would create positive effects on students.

(9) It has been found out that the effectiveness of the internship increases with the increasing number of trained technical personnel at the workplace.

(10) The managers should be contacted and notified not to assign to students any work unrelated to their fields and not to have them do useless work.

(11) Students can frequently be checked upon so that they will take the internship more seriously. Supervision should not be limited to only this. It can be made more effective by interviewing students at the end of their internship period while they are submitting their folders.

## REFERENCES

- Aksoy HH (1987). "The Planning of Human Power", J. Pol. Sci. Facult., 42(1-4): 143-160.
- Aksoy HH (1996). "Income of economy, Employment and Vocational and Technical Education from Aspect of Market Oriented Effects", Ankara University. J. Facult. Edu. Sci., 29(1): 73-104.
- Alkan C, Doğan H, Sezgin Sİ (2001). Principles of Vocational and Technical Education, Ankara, Turkey.
- Alkan C, Doğan H, Sezgin İ (1994). Principles of Vocational and Technical Education, Gazi University Faculty of Fine Arts Publication, Ankara, Turkey.
- Ata N (2007). The Structure of Labor Markets and Youth Unemployment in Turkey, Youth Unemployment Symposium, TISK Acad. J. Special Issue, 1: 109-119.
- Aydağlı B (2006). Skills, Qualifications and Vocational Education: Policy, Analysis and Proposals, Sabancı University and TURKKONFED, 2006 Draft of Reorganization Undergraduate on Vocational and Technical Higher Education, HEC Commission of Development of Vocational and Technical Education Development <http://www.4myomt.ktu.edu.tr/kmetinlersunumlar.php> (11.02.2009)
- Aydoğan ZF (2002). Importance of Internship Education in The Undergraduate Programs in Office Administration, Gazi University Institute of Education Sciences, Unpublished Master's Thesis, Ankara.
- Balcı M (1990). New Dimension in Vocational and Technical Education, The First National Congress on Science Education. Ankara University Faculty of Education.
- Binici H, Arı N (2004). Seeking New Perspectives in Technical and Vocational Education", J. Gazi Edu. Facult., 24(3): 383-396.
- Çelik Ö (2005). The Expectations of High Education Institutions from Industry Internship and The Level of Industry Internees in Reaching The Expectation, Gazi University Institute of Education Science, Unpublished Master's Thesis, 41, Ankara.
- Eroğlu E (2002). Total Quality in Distance Educational its 20th Anniversary Celebrations, Open Education Faculty (AÖF) Holds Its First International Symposium, <http://aof20.anadolu.edu.tr/program.htm>, (08.10.2009).
- Eşme I (2007). Current Status in Vocational and Technical Education and Its Problems, T.C. The Council of Higher Education, International Vocational and Technical Education Conference, Ankara. [http://www.yok.gov.tr/duyuru/isa\\_esme.ppt](http://www.yok.gov.tr/duyuru/isa_esme.ppt) (27.04.2008)
- Hızlan D (1997). School - Industry Relations, İnkılap Publications,

- İstanbul, Turkey.
- ILO (2009), Global Employment Trends, January 2009, [www.ilo.org/public/english/region/ampro/cinterfor/news/get-2009.pdf](http://www.ilo.org/public/english/region/ampro/cinterfor/news/get-2009.pdf) (22.03.2009)
- Kepenekci YK (2007). "National Legal Basis of Vocational and Technical Education in Turkey", Ankara Univ. J. Facul. Edu. Sci., 40(1): 269-283.
- Korkmaz M (2005). Evaluation of Internship of Vocational High School, Clothing Program Students, Gazi University Institute of Education Science, Unpublished Master's Thesis, Ankara.
- Kudatgobilik T (2007). "Youth Unemployment Symposium", TISK Acad. J. Special Issue, 1: 8-12.
- Kurul TN (2002). Education Financing, Anı Publication, Ankara.
- Okay Ş, Özdemir SM, Semiz S (2010). "Assessment Of Student Satisfaction Levels In Automotive Teacher Education Programme At Selected Turkish Faculties Of Technical Education", Kastamonu University Kastamonu Edu. J., 18(1): 209-226.
- Özdamar K (2002). Statistical Data Analysis Package Program-1, Kaan Publishing, Eskisehir, Turkey.
- Öçal H (2008) "Vocational Education and Vocational Guidance, Science and Education in The Light of The Mind", 99, 12-19. <http://yayim.meb.gov.tr/dergiler/sayi99/index2-icindekiler.htm> (14.04.2010)
- Önder Ş (2005). A Glance to Internship Application of Social Programs in The Vocational High School, D.P.Ü. Kütahya Vocational High School, 3. Symposium of National Vocational High School, Burdur, Turkey, pp. 266-270.
- Özgüven E (2001). Psychological Counselling and Guidance in Contemporary Education, PDREM Publications, Ankara, Turkey.
- Parlar Z, Kocabal YZ, Temiz V, Derbentli T (2008). Internship Applications and Importance from The Point Industry-University Cooperation", The Platform of University-Industry Collaboration Center (USIMP) National Congress of University Industry Cooperation, Adana, Turkey, pp. 155-164.
- Saygılı Ş, Cihan C, Yavan ZA (2006). Sustainable Growth and Education: Turkey Experience, Risks and Opportunities, TUSIAD Publications, İstanbul, Turkey.
- Şahin İ, Okay Ş, Özdemir S (2007). Problems and Status of Technical Education in Turkey, Young Investigator Symposium of National Technical Education, Engineering and Educational Science (UMES'07), Kocaeli University, Kocaeli, Turkey. pp. 1018-1021.
- Taşçı D (1995). The Applicability of Total Quality Management and Training, 4. National Quality Congress Book of Papers, 255-259.
- Tekin H (1993). Measurement and Evaluation in Education, Yargı Publishing, Ankara, Turkey. p. 262.
- Temel M (1996). Accordance Problems Between Vocational and Technical Education and Vocational High School, in Intermediate Level The Reconstruction of Vocational High Schools Towards 21. Century, Ankara University, Çankırı, Turkey. p. 6.
- The Student Selection and Placement Centre (SSPC) (2009), Undergraduate level and YOS quotas ÖSYS <http://www.osym.gov.tr/BelgeGoster.aspx?F6E10F8892433CFFD4AF1EF75F7A79688FA52B4F2ED6CCC5> (28.03.2009).
- Tonta Y (2008). Factor Analysis, <http://yunus.hacettepe.edu.tr/~tonta/courses/spring2008/bby208-12-faktör-analizi.ppt> (20.07.2009).
- Töre N (2007). "Towards Solving the Problem of Youth Unemployment Policy", Youth Unemployment Symposium, TISK Acad. J. Special Issue, 1: 129-135.
- Uzay Ş (2005). "Problems and Prospects of The Accounting Profession Trainees: A Study", J. Acc. Fin., 25: 70-78.
- Ünal LI (1996). Economics of Education and Training, Epar Publications, Ankara, Turkey.
- Yenen VZ, Gözlü S (2003). "Customer Expectations in Higher Education: Examples from Turkey", J. Istanbul Technical University/Engineering.
- Yurdagül H (2010). KMO and Bartlett Test of Factor Analysis Meter What? <http://yunus.hacettepe.edu.tr/~yurdugul/3/indir/Kuresellik.pdf> (07.01.2010).

## Appendix

### Factor 1: The benefits of industrial internship

1. Probation provided more information on current topics.
2. Probation provided opportunities related to my field has to use modern tools and techniques.
3. Probation provided directions to my ideas business life in future.
4. Probation provided the opportunity to see areas that I was missing
5. Probation contributed transform from my theoretical knowledge to practical.
6. Probation acquired to ability using and planning time efficiently.

### Factor 2: The advantages of industrial internship

1. Internship helped to perceive necessity of life long learning programmes.
2. Internship acquired oral communication ability.
3. Internship acquired to ability of disciplinary team work.
4. Internship provided awareness about vocational of responsibility and ethical.

### Factor 3: The conditions of the place of internship

1. Too many people were related to the field in internships area
2. Proficiency level of employees on probation in the vocational field was good
3. According to the weight of probation training in topics that were used for training.
5. There is no mismatch of probation guide with the desired qualification between their training

### Factor 4: The procedures for industrial internship

1. Internship file is more detailed
2. Internships workplace manager had difficulty filling the internship file
3. In internships workplace, there is difficulty in receiving information in one's field
4. There is difficulty in finding an internship workplace

### Factor 5: Industrial internship education

1. Time course of the internship was enough.
2. Employees who have worked in the probation area have enough interest in education training.
3. A probation which is parallel with education issues has been covered.