Evaluation of Vocational Education Construction Technician by Lecturers

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Abstract: In this study the faculty members who served in the Civil technician training in Construction Technology Program which one of two-year Vocational Technical High School Program, have been trying to search for relating to alumni comments and suggestions about classroom curriculum, industry-based training applications, information systems. For this purpose a questionnaire was administered to teaching staff who served in different vocational schools of different universities which consists of 28 questions. Survey in the context of the teaching staff of the course content, how much they are happy, whether they think the theoretical and practical lesson hours in curriculum classes, the laboratory facilities of the application whether or not, technical field trips, conferences, seminars served in the vocational schools which are applied in frequency were asked. Apart from problems related to curriculum, construction technician has a very important place in teaching that the inspection of industrial training, internship and then interview, examination and achievement levels of students received a result that responses were evaluated. The ideas of the construction teaching staff in arranging a national symposium on education technicians and construction sectors in the field of civil engineering/construction teacher/architectural education provider to do joint activities with the perspectives were investigated. In addition, surveys of faculty members applied the quality of construction technicians in the art are also to be thinking about. Some results of the findings of this work, a symposium is desired as soon as possible broad participation with a construction technician education, the construction industry different topics technicians was trained with organizations collaborate and projects consolidated at being desirable, training of the overall goal reached, but inspection and examination of the continuing benefits, monitoring system on the development of graduates are beneficial.

Introduction

The construction sector is one of the oldest branch of industry on earth. It firstly existed by people who tried to protect themselves from the negative impacts of the nature and it developed, diversified and reached its current level by the time when water constructions, temples, memorials, city walls for cities and countries, roads and bridges and with other constructions were built. Approximately 150 years ago, that branch of industry caused the existence of civil engineering as the first engineering and the first engineering education begun (Yoklu, 2009). Another higher education facility that supply qualified labour for the sector is occupational high

schools. The alumni of the occupational schools are employed in private construction or supervision companies as civil technician in the constructions of dam, road, airport, house, etc., and in public and local administrations as technicians in the departments of natural resources, transportation/highways, construction or material test laboratories. They play an important role in planning, projects, construction and control phases of all the constructions, including but not limited to roads, bridges, dam, airport, water supply and distribution, houses and trade centres (Uğur and others., 2008).

The study

There are many studies which have been done generally by students on the civil technician education in the higher occupational schools for two years. Those studies have been focused on courses, educational perspectives, instructors, job trainings, physical sufficiency of the schools.

Birinci and Arı (2004) stated that there are lack of laboratories and workshops in some of those occupational schools; however, those schools with their implementative orientation for the educational qualification give no great importance to the buildings with special design for the continuance of the education. Hızlan (1997) stated that the basic criteria of the education are the conformity and objective unification of industry and schools.

The assessments of the instructors on the basis of the opinions of students is one of the most used methods to determine the features of the education and many countries have been accepted such data as an important input (Shevlin, 2000, Greenwald, 1997, Mskheachie, 1997).

The student assessments, however, cause some discussions. Those discussions have been focused on invalidation of the student assessments since the expectations and prejudgments of students may affect the assessment and whether those students have met the required qualifications to make such assessments. (Kaya and others, 2007).

It is seen that the number of the studies about the opinions of the instructors who are very important for the civil technician education.

A questionnaire with 28 questions has been asked to 60 instructors who are employed in 12 different occupational school of civil technician in Turkey to assess the education in the schools. The occupational schools where those instructors are employed are in the Table 1.

University / Vocational education
Ahi Evran University / Kaman
Ahi Evran University/ Kırşehir
Batman University / Batman
Bitlis Eren University/ Bitlis
Cumhuriyet University / Sivas
Çukurova University / Adana
Dicle University / Dicle
Hacettepe University / Polatlı
Sakarya University/ Hendek
Selçuk University / Kadınhanı Faikiçil
Selçuk University/ Teknik bilimler
Süleyman Demirel University/ Isparta

Table 1. Universities and occupational schools where the instructors are employed

The questionnaire have tried to clarify the profile of the instructors, sufficiency of courses, laboratories, implementations on civil technician, benefits of cooperation of the civil technician education and students with other departments and students of other departments, job trainings for students and probable participation of symposium/congress on civil technician. The opinions of instructors on the development of the civil technician education have been taken, as well. There are multiple-choice questions for 25 and the rest is open ended. The answers of the instructors have been converted to percentages and they were explained meaning by the help of graphics and tables.

Findings

According to the findings, the participants have been working averagely in occupational schools for 6 years. The percentage of the academic members is 41,7 % and lecturer is 58,3 % in those 60 instructors answering the questionnaire.

The instructors consist of 50 % civil work instructors, 42 % civil engineering and the rest is, 8 %, architecture (see Figure 1)

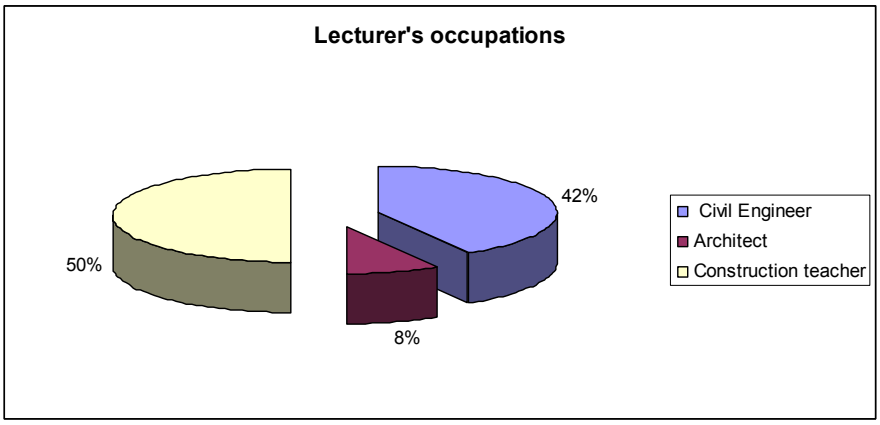

Figure 1. Professions of the instructors

Educational background of instructors; %34 “BA degree”, %33 “MA degree”, %33 is “doctorate” (see. Figure 2).

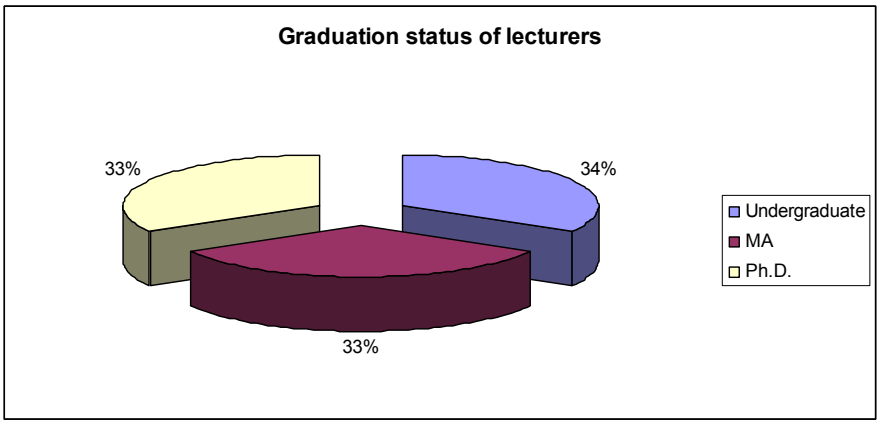

Figure 2. Educational backgrounds of instructors

The instructors participating to questionnaire are asked which courses have sufficient contents they think enough. When the answers are examined (see Table 2), it is seen that they find mostly the content of “Concrete Technology” with 98,38 %. It is followed by “Construction Technology” and “Construction Static” with 7,29 %.

Courses	%
Concrete Technology	9,38
Construction Static	7,29
Construction Technology	7,29
Organization of office and construction site	6,25
Soil Mechanics	6,25
Damage Detection in Structures	6,25
Materials Science and Building Materials	6,25
Topography	5,21
Quantities and Discovery Works	5,21
Computer	4,17
Computer Aided Design	4,17
Road Construction	4,17
Resistance	4,17
Systems Analysis and Design	4,17
Structure Installation Information	3,13
Steel Structures	3,13
General and Technical Communication	3,13
Business administration	3,13
Architectural drawings of buildings and details	2,08
Water Supply and Waste Water	2,08
Hydraulics and hydrology	1,04
Timber Structures	1,04
Prefabricated Buildings	1,04
Total	100

Table 2. The courses and percentages which the instructors find sufficient

The instructors were asked that which course contents are insufficient in the curriculum; the answers and percentages are indicated in Table 3. Accordingly, "Wooden Building" and "Business Management" are found insufficient in terms of their content with 21,43 %. They are followed by "General and Technical Communication" with 17,86 % and "Hydraulic and Hydrology" with 14,29 %.

Courses	%
Wooden building	21,43
Business management	21,43
General and Technical Communication	17,86
Hydraulics and hydrology	14,29
Water Supply and Waste Water	14,29
Systems Analysis and Design	7,14
Organization of office and construction site	3,57
Total	100

Table 3. The courses and percentages which the instructors find insufficient

The instructor have assessed the existing courses and stated that there can be other courses which can be included in the civil technician education. The courses which the instructors find useful to add the curriculum are

construction technician drawing, laboratories on mansonry and wooden, cement and floor mechanics laboratories, construction law, job security and labour health, computer aided project management.

The instructors of occupational higher schools have stated that theoretical and practical hours of the courses are not suitable for 66,7 %, however, 33,3 % of the instructors have stated the suitability of the courses for the civil technician programmes.

The instructors, 91,7 % have stated that the new comer students have insufficient background to have civil technician education.

The instructors have asked for the sufficiency assessment of the computer, foreign language, topography and problem solution implementation in the programmes. The answers indicated;

- Computer implementation 66,7 % sufficient (see Figure 3),
- Foreign language 50 % mid-level sufficient (see Figure 4),
- Topography 75 % mid-level sufficient (see Figure 5),
- Problem solution 66,7 % mid-level sufficient (see Figure 6)

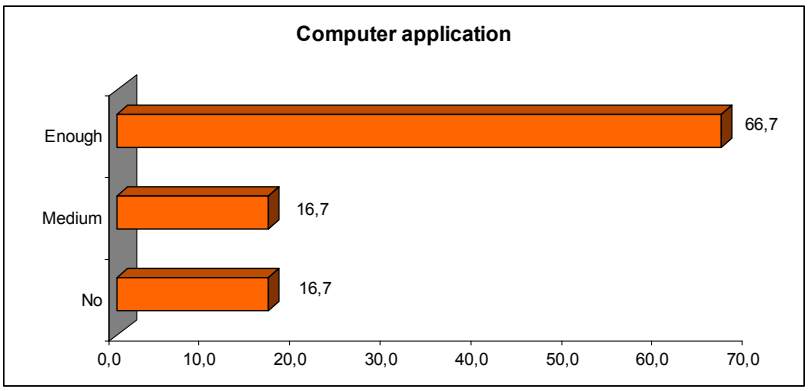

Figure 3. Assessment of the sufficiency of the computer implementation

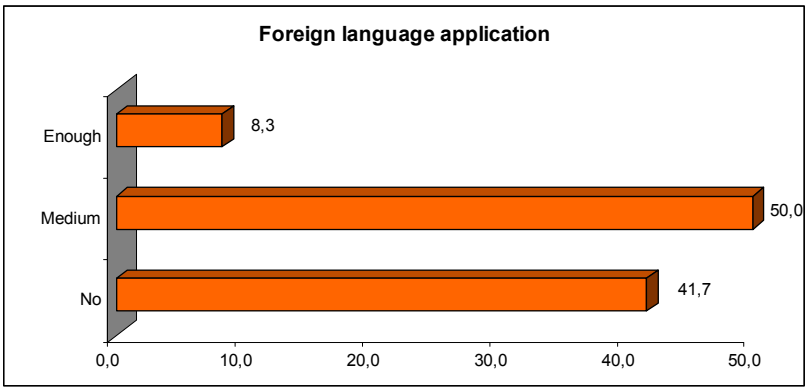

Figure 4. Assessment of the sufficiency of the foreign language

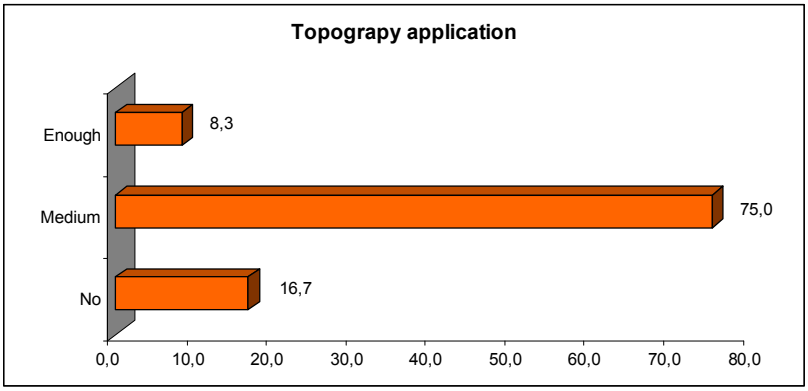

Figure 5. Assessment of the sufficiency of the topography

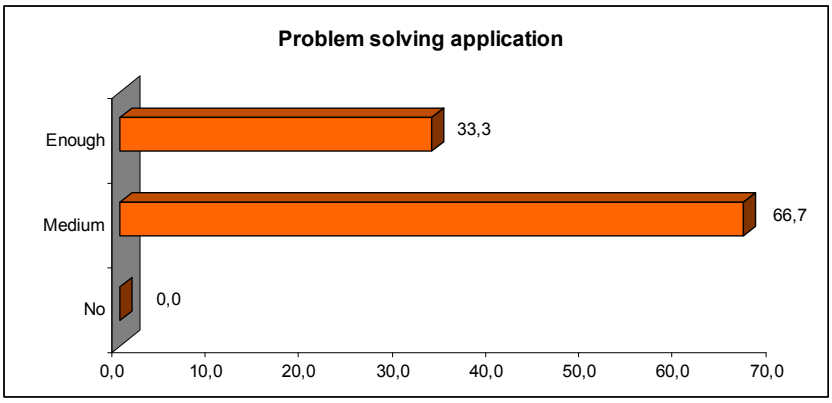

Figure 6. Assessment of the sufficiency of the problem solution

The answers of the instructors to question about the frequency of the technical visits in their occupational higher schools are in Figure 7. Accordingly;

- 51 % of the instructors stated that there is no technical visit at all;
- 33 % of them stated that there is a technical visit once a year;
- 8 % of them stated that there is a technical visit once a semester;
- The rest 8 % stated that there are technical visits more than one in a semester.

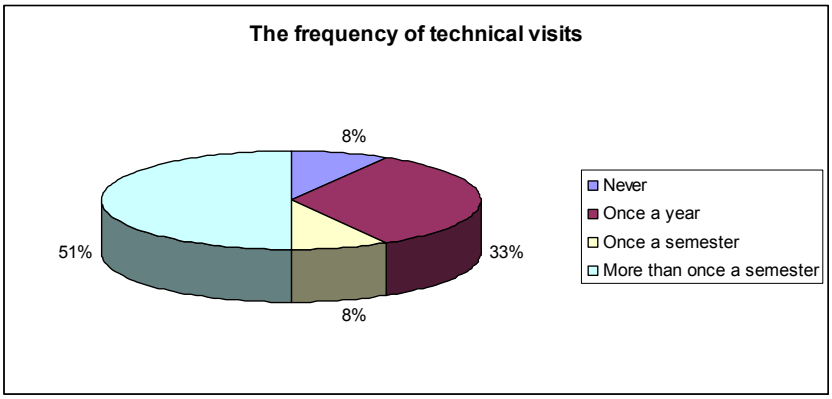

Figure 7. Frequency of the technical visits

The instructors have been asked the frequency of the conferences and seminars in their own schools; 42 % stated that "once in semester". 17 % of the instructors stated that there is not any conference/seminar in their school (see Figure 8).

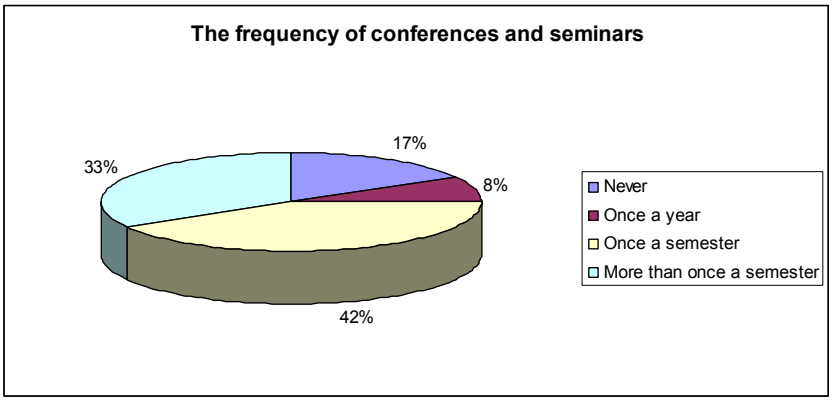

Figure 8. Frequency of conference and seminars

The instructors have assessed the duration of job training, scope, accuracy, practice and opportunity to learn the construction sector in the construction programme of students as "insufficient", "average" and "sufficient".

- The ratio of sufficient for the job training are equal to average and insufficient as 33,3 %.

- According to the instructors, the scope of the job training for the civil technician programme students are 16,7 % sufficient, 58,3 % average and 25 % insufficient.
- Only 16,7 % of the participants find the accuracy of the job training is sufficient.
- There is no instructor who finds the scope of the job training is exactly what it should be. 50 % finds it insufficient while the other 50 % finds it "averagely sufficient".

The instructors, as 58,3 %, stated that the opportunity for students to learn the sector during the job training is insufficient. Only the 8,3 % thinks that such opportunity is sufficient. No instructor has supervised the students during the job training. However, 75 % of the instructors say there are interviews/tests for post job-training periods.

According to the answers of the 50 % of instructors, 70 % of students are successful in these post-job training interviews and tests. On the other hand, 25 % of the instructors has stated that the ratio of successful students in post-job training evaluations as less than 70 % (see Figure 9).

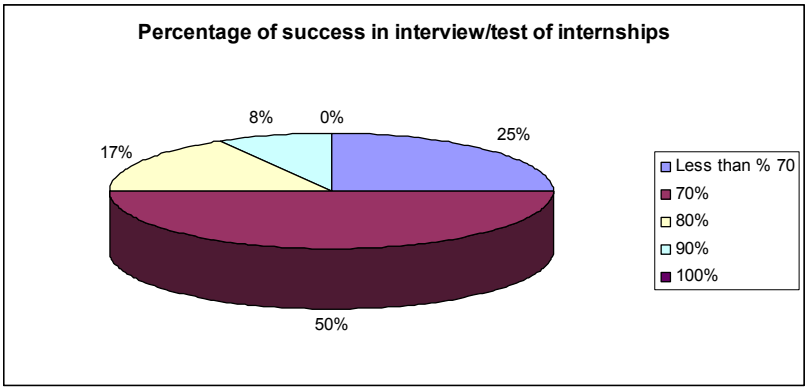

Figure 9. Success ration in post-job training interview/examinations

The instructors were asked about the information on construction programme in their web sites and the answers are in the Table 4. Accordingly, mostly included web information is;

- 25,64 % course contents,
- 23,08 % courses,
- 20,51 % definition of civil technician education.

The web sites;

- Legislation,
- Authority and responsibilities,
- Occupational modes (Occupational roles, control, project drawing, bill of quantities, etc.),
- General situation of the construction sector,
- Place of the civil technicians in the sector, and
- Occupational and sectoral institutions are not included.

Web information	%
Course contents	25,64
Course List	23,08
Technician training is the definition of construction	20,51
Technical tours	12,82
Legislation	12,82
Internship applications	2,56
Vocational training	2,56
Total	100,00

Table 4. Web site contents

The 41,7 % instructors have negative opinions about 6 semester technician education that will be enforced by the Board of Higher Education (YÖK). %33,3 of instructor has no idea about the matter (see Figure 10).

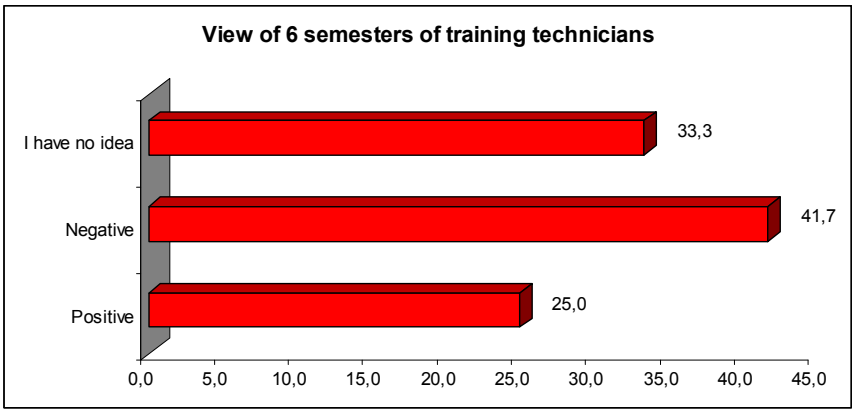

Figure 10. Opinions on 6 semester technician education.

The instructors were asked "do you think that a national level congress or symposium on 'Civil Engineering Education" should be held on" and all of them answered positively by saying "Yes, it should be". In case such an organization is held, the instructors will;

- 44,4 % will participate in with a paper,
- 17 % will not participate in,
- 11,1 % will be work in scientific committee,
- 11,1 % will participate as referee,
- 11.1 % will be in advisory board,
- 6 % will participate as audient (see Figure 11).

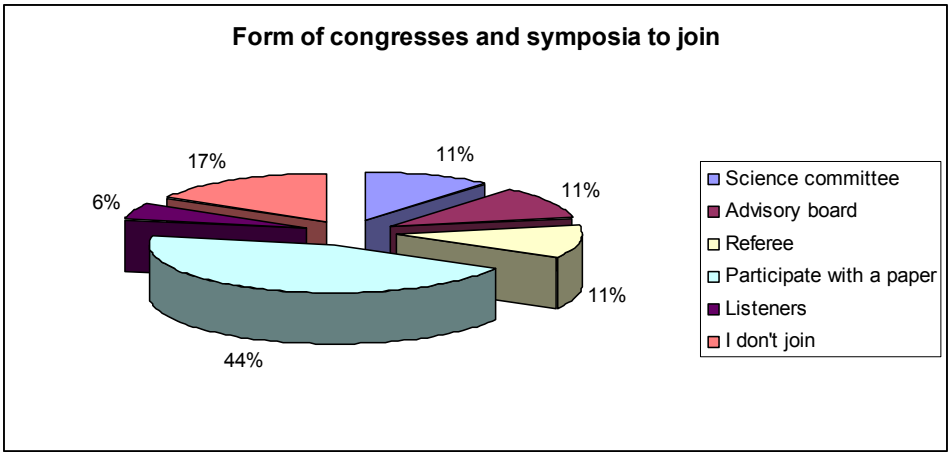

Figure 11. Form of participation to congress or symposium

When the instructor were asked whether they have student follow up system; only 16,7 % told that they have a follow up system, 25 % told that such a system is at the developmental stage. 58,3 % of the participants stated that they do not have such a follow up system.

The instructors assessed the benefits of co-works their current institutions which educates the civil technicians with other institutions which educate civil engineering, building teacher/architecture. As it can be seen in Table 5,

- In terms of the co-ordination of the instructors, such efforts will benefit 50 %,
- In terms of harmonization of the different disciplines in the same sector, such efforts will benefit 58,3 %, that is great,
- In terms of following the technical developments, such efforts will benefit 91,7 %, that is great,
- In terms of following the changes in legislation, such efforts will benefit 75 %, that is great,
- In terms of contributing the changes in legislation, such efforts will benefit 66,7 %, that is great,
- In terms of updating the education methods and practices, such efforts will benefit 91,7 %, that is great,
- In terms of joint projects and increasing the scientific researches, such efforts will benefit 83,3 %, that is great.

	More	Medium	No
Coordination of the teaching staff	41,7	50,0	8,3
Belonging to different disciplines in the same sector, harmonization of training programs	58,3	41,7	0,0
Technical monitoring developments closely	91,7	0,0	8,3
Monitoring of legislative changes	75,0	8,3	16,7
Contribute to changes in legislation	66,7	33,3	0,0
Updating of teaching methods and practices	91,7	8,3	0,0
To carry out joint projects	83,3	8,3	8,3
Increasing scientific research	83,3	8,3	8,3

Table 5. Opinions on the aspects of benefit of co-works with institutions which educate on civil engineering/ building teacher / architecture.

A question in the questionnaire made the instructors to assessed the aspects of benefit that in case the civil technician students pair up with students of engineering/architecture/building teacher on different grounds; according to the answers;

- Such an effort will be useful to understand the roles in the work life (%66,7),
- Such an effort will be useful for health evaluation of authorities and responsibilities in the construction projects (%75,0),
- It will be useful in terms of the diminishing the emotions on account of misunderstandings (%83,3),
- Such an effort will be useful to understand the other occupations' scope of education (%75,0). (see Table 6).

	More	Medium	No
A better understanding of the role of business	66,7	33,3	0,0
Authority and responsibility for construction projects more robust assessment of	75,0	25,0	0,0
Misunderstanding caused by the reduction of the sense of	83,3	16,7	0,0
Understanding of the scope of vocational training of other	75,0	25,0	0,0

Table 6. Assessment the aspects of benefit that the civil technician students pair up with students of engineering/architecture/building teacher on different grounds.

The instructors were asked whether the civil technician education must be monotype or it must be different according to the university/occupational higher school; 67 % of them said "must be different". (see Figure 20).

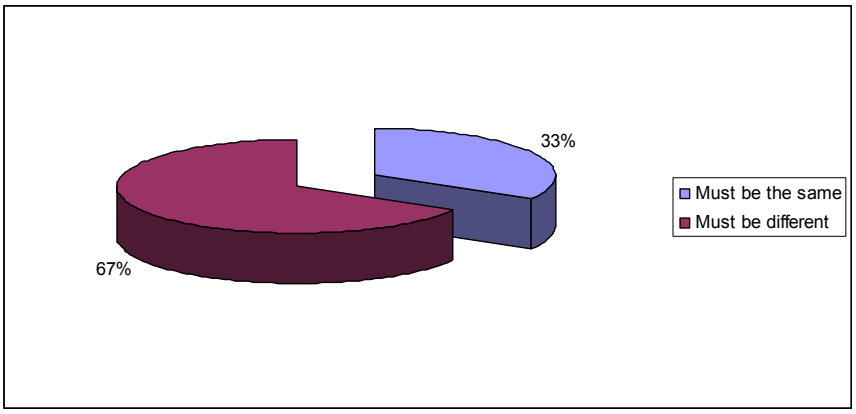

Figure 20. Civil technician education must be monotype or different from each other, the answers and percentages

Majority of the participants stated that civil technicians cannot take place in the occupational higher schools as instructor (%91,7).

The instructors, 91,7 %, have supported the existence of the course of Occupational Ethic in the construction programmes of occupational higher schools. (Figure 12).

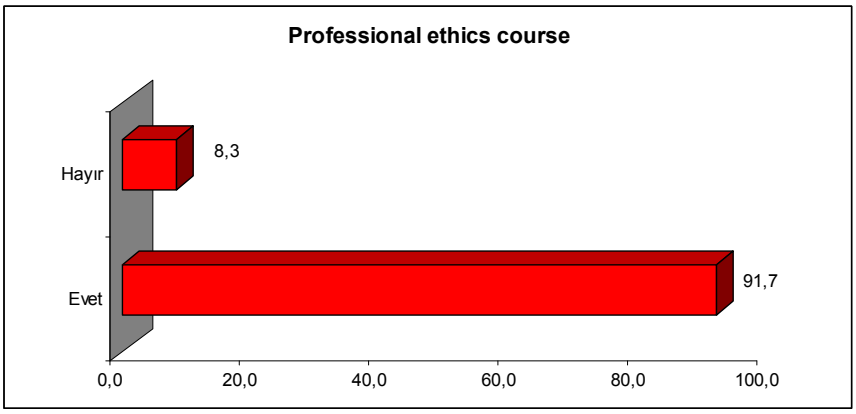

Figure 12. Perception of the instructors on occupational ethic course

The instructors, also, defined the possible revisions in the current system to grow better civil technicians, as below:

- The supervision of the job-training should be increased.
- The frequency of conference, seminar and technical visits should be increased.
- The duration of education should be increased.
- The technology must be traced more closely.
- The cooperation between schools and companies should be developed by signing protocols.
- The qualifications of the instructors should be increased.
- The open admission should be abolished.

Conclusions

Those are seen in the direction of the answers given by the instructors;

- The content of some courses of civil technician education are insufficient, it is useful to update those courses,
- It is found useful civil technician education to add the courses of technical drawing, labour health and job security,
- The exchange of theoretical and practice hours will contribute to the students positively,
- Majority of the students who begins the civil technician education have insufficient infrastructure, therefore, its compensation either in secondary education or at the beginning of the higher education, ,
- It is necessary to increase the practice of foreign language, computer and topography and frequency of technical visit, conference and seminars.
- The job-trainings are not supervised during the term but the post-job training examination is useful, the supervision needs to be increased,
- The scope, accuracy and practice of job-training have been found averagely sufficient and should be recovered,
- It will be positive when the information on legislation, authorities and responsibilities of technicians, situation of the sector is placed into web sites,
- Only the quarter of the instructors have positive opinions about the 6 semester education in 2 years,
- The occupational ethic practices will be useful,
- A civil technician education symposium with broad participation is demanded,
- A cooperation and joint projects with institutions which educates technicians for different places of construction sector are desired,
- It will be useful to develop alumni follow-up systems.

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