

SWOT Analysis of Technical Education and the Evaluation of its Effectiveness

Hüseyin Gül

Department of Technical Education Faculty, Kocaeli University, Kocaeli/Turkey

Abstract: Swot is a kind of analysis method which is used in strategically planning and formed with the initial letters of concepts of strengths, weakness, opportunity and threats. This method was used in a related research of TEF (Technical Education Faculty). Recently as the problems of TEF have increased, the efforts to close some of them down and change functions of the rest have been carrying on. So; because of this reason doing TEF-related researches and their solutions is becoming important. The research aims at determining the deficiencies of TEF according to the perception of TEF's students and lecturers. The data has been acquired with a TEF-SWOT-AQ and interview method which was developed by the researcher. Questionnaire was applied at two stages. An initial test was given to 5 lecturers and 10 students. The test was repeated 10 days later with the same subjects. They expressed similar opinions at the end of both tests. And this showed the validity of the questionnaire. The opinions of the subjects are confirmed by themselves and thanks to this the data-reliability was provided. The total field under research is consisted of 64 lecturers and 1664 students of TEF in 2007-2008 academic years. The sample group was formed by 23 lecturers and 204 students. The ratio of sampling to total field was 13 %. The data gathered was classified according to proper title from the internal environmental elements as strengths and weakness; and from external environmental elements as opportunity and threat. And the suggestions have been put forward in accordance with these findings.

Key words: Faculties of technical education % Analysis of SWOT % Strategic method % Strategic analysis

INTRODUCTION

Swot, is an analysis method which is used in strategic planning and consisted of the initial letters of concepts of strengths, weaknesses, opportunities and threats.

Strategic planning is a process in which future aims are determined together with the share-holders and responsibilities and sources are allocated in accordance with these future aims [1]. Karaagac (2007), defines strategic planning as a process between the point a company stands and the points it tries to reach in a certain period of time [2]. The concept of strategic planning is closely related with the concept of foresight, in this regard strategic planning can be considered as the collection of systematic effort of experts for the best choice of the future [3].

The aim of strategic planning is to produce planned facility, embody the appointed policies, follow the application efficiently and take the initiative and provide the effective participation. In the process of strategic planning, some of the fundamental questions are needed to be answered. Those are; "where are we?", "How can

we reach our desired goal?" and "How can we evaluate our success?" [4].

In on area of administration and leadership; a strategic planning can provide vital support [1]. Universities are expected to make a strategic planning on that base in order to gain a better perception of administration. Due to that fact; YODEK (Higher Education Council Academic Evaluation and Quality Development Committee) suggests designating of universities' performance with taking appointed 76 criteria in to consideration [5]. Most of the universities in Turkey try to make their plans with taking notice of those criteria. Middle East Technical University has already designated its 2005-2010 academic years of strategic planning.

Also Kocaeli University (KU) prepared a strategic plan in 2006 [6]. According to Komsuoglu (2008), Kocaeli University takes its place in the best 10 universities of Turkey among 94 state and 33 private universities with its 58.000 students and its 6.000 acres area and everlasting infrastructure [7]. With in Kocaeli University, there are 11 faculties. Technical Educational Faculty (TEF) is one of them.

When it is considered historically, the foundation of TEFs in Turkey dates back the year 1937, where as in the world vocational and technical high schools date back 1850s when market economy was developed under the conditions of free competition and economic freedom [8].

TEF in Kocaeli University was founded in 1992. It has branches of computer, electric, electronic and automotive.

The basic functions of TEFs are, training technical teachers for the vocational and technical high schools in Turkey. Along with this, it has a function to train technicians needed in state or private sectors. In recent years, the increasing problems in TEF, have led to closing down of some faculties. Also there are some attempts to change some of their functions.. In that aspect, it is becoming important to know what the problems of TEF are and how can they be solved? Due to this reason, it is reported as vital to make a research about TEF. The research is only restricted with Kocaeli University (KU). The research in KU aims at evaluation of efficiency of TEF using swot analysis method according to perception of lecturers and students. The data collected from the subjects during the research is considered to be valid.

Problem Statement: What is the level of Technical Education Faculty's efficiency according to perception of Technical Educational Faculty's lecturers and students?

METHODS

Data Analysis: This research has been done according to qualitative research model. In this research; swot analysis technique was used. Swot analysis was used for the first time by Albert S. Humphrey who is a scientist specializing on organizational administration and the area of cultural exchange [9]. Swot analysis which was used for the first time in business administration in 1920s was also used as a medium of analysis and planning for application in the years following [10]. Swot analysis contributes to institution's analysis and reinforcing instructive understanding of leadership by providing useful data from institution's source and skills in a competitive environment [11]. Swot analysis can be applied to all major-minor institutions and organizations whether they aim to gain profit or not. This method is suggested in producing machine tool and in carrying out an efficient industrial strategic planning too [12]. As a medium of administration; swot analysis is used in making a plan;

defining a problem and solution of it, making a strategy and giving an analytic decisions [12]. This situation affects teachers greatly and consequently affects student's motivation and academic success greatly. As Ucar declares (2005), swot analysis has been developed as an important medium of providing data which can make use of sources and skills many of the have in their environment [10]. Data, which is gained through either in formal or informal information, can be used in the process of strategic planning [13]. By this way; with the help of swot analysis, it is easy to determine institution's present situation and whether that institution functions properly or not.

Collection of Data: In order to develop the questionnaire, national and international literature was read and with the opinions of 4 TEF's lecturers and 10 students; a draft questionnaire was formed.

Questionnaire which was prepared as a draft was applied to the test group comprising of 5 lecturers and 15 students as a pre-test and 10 days later draft questionnaire was applied as a last test to the same subjects. Subjects declared similar opinions after the two tests. By this way; Technical Education Faculty – Swot Analysis Questionnaire (TEF-SWOT-AQ) gained its latest form. This shows the validity of the test prepared. The last form of the test was applied after necessary legal permission was obtained in the process of applying TEF-SWOT-AQ. The questionnaire was applied to all TEF's lecturers who're volunteers. Besides, the questionnaire was applied to all students who were willing to take it. The instructions have been given about the questionnaire to the subjects. The subjects have been instructed clearly about how to fill in the the questionnaire and after subjects wrote down their ideas they were interviewed in order to confirm whether the replies they gave were their own ideas or not. By this way, the reliability of the research was achieved. The example of TEF-SWOT-AQ is given in Table 1.

As it is seen in Table 1, the questionnaire consisted of 2 parts, in first part as an independent variable is the fact that subjects are lectures and students, but in second part as dependent variable, the subjects were given strengths and weaknesses in a table for internal environmental factors and expected opportunities and facilities and expected threats and dangers for external environmental factors. Besides, the interviews made with the subjects were reported and used as data in the research.

Table 1: Technical education faculty-swot analysis questionnaire (TEF-SWOT-AQ)

Chapter I		
A. Lecturer	B. Student	
Chapter II		
	Strengths In terms of reaching goals	Weaknesses In terms of reaching goals
About Internal Environment Internal atmosphere of institution	The strengths of TEF: (S) <i>- What do you think about TEF's strengths in reaching internal goals of institution Write in articles, please</i>	The weaknesses of TEF: (W) <i>- What do you think about TEF's weaknesses in reaching internal goals of institution? Write in articles, please</i>
	Opportunities	Threats
About External Environment External atmosphere of institution	The opportunities that are waiting TEF: (O) <i>- What do you think about TEF's strengths in reaching external goals of the institution? Write in article, please.</i>	The dangers and threats that are waiting TEF: (T) <i>- What do you think about TEF's weaknesses in reaching external goals of the institution? Write in articles, please.</i>

Table 2: TEF-SWOT-AQ and the findings that are obtained with interview technique

	Strengths In terms of reaching goals	Weaknesses In terms of reaching goals
Origin of Internal Environment Internal atmosphere of institution	TEF's sides of strengths: (S) C Graduates are good at in terms of both technique and pedagogy C It is dominantly an analytic faculty C Inn addition to engineering lessons "pedagogy" courses are also given C The faculty is situated in Kocaeli which is an industrial town C It has young and dynamic lecturers C It trains "technical teachers" C The conditions of laboratory are same with EU standards C It trains its students properly for both the teaching area and state or private sectors C It has functional, convenient and new building C It has well qualified lecturers C When compared with other faculties the graduates can easily get a job or can start business of their own. C Visits are organized to technical fairs for students for free of charge C The students from computer department are advantageous in being appointed as a teacher C The students from "computer teacher" department are more advantageous when compared with students from computer and teaching technology C Personal development instruction is given C It focuses on project works C Each student has a chance to use one PC C Via internet it is easy to reach student information system C Diplomas are regarded as equal by EU university Association	TEF's sides of weakness: (W) C After graduation, it is not a guarantee to get a job C There is not enough employment for graduates as technical teachers C The courses are mixture of engineering science and literature and pedagogy departments C Student's wishes and desires are not taken into consideration C Distribution of courses are unbalanced between two semesters each year C Course loads are heavy C There are not enough activities that socialize students C Some of the lecturers' pedagogic trainings are not sufficient C Student's enterprises are not supported Absence of research unit and techno-park is a problem C Absence of unit of revolving fund is a problem C Due to crowded classes; the length of workshop practices is short C Despite Government Officer Selection Exam (GOSE) students prepare on their own, 4th year students are obliged to come to class regularly but the class schedule is crammed C The services of canteen are inadequate Research assistants' practices are inefficient C There are cleaning up matters C The training programs are not suitable for high school graduates C There is not building up any connection with industrial undertaking C There is not enough connection with the graduates C Foreign language training is inadequate

Table 2: Continued

Original of External Environment	Opportunities they're expecting from TEF: (O)	Threats that are waiting TEF: (T)
External atmosphere of institution	<ul style="list-style-type: none"> C There is still a chance to become a teacher C In Kocaeli,; there is a growing industrial expansion and because of this; the opportunity to find an employment in state or private sector increased C Kocaeli, as an industrial town is close to other industrial regions especially to Istanbul C Throughout the Turkey, there is an increasing necessity of technical personnel C Training courses contributes to Government Officer Selection Exam (GOSE) C Graduates are able to work in a state or private sectors except for becoming a teacher C There are new developments in an area of electronics and informatics C In EU adaption process; technical faculties are supported C National and International developments cause necessity of technical personnel C There is no other alternative in training technical personnel C The problems of faculty can be solved by politicians 	<ul style="list-style-type: none"> C Graduates haven't got any specific status C Technical education faculties do not work coordinately with Minister of Education C There is not a guarantee to find an employment after graduation C The development of science and technology is rapid C The some courses at same departments are not similar in different technical faculties C Closing down of faculties or changing their status are on the agenda C Graduates are not permitted to use their signatory powers on their own projects C Due to anxiety for future; student's desire for learning is low C Graduates are employed with low wages in the market C Not being appointed as a teacher is another probability C Students are still accepted to the departments whose graduates are not appointed as teachers C There is a lack of importance to the engineering and technical colleges in high school education C The qualifications of new coming students are low C The presentation of TEF is inadequate C The unemployment in Turkey, affects the TEF C There are excessive number of students C There is a great number of TEF and its departments

Population and Sampling: The scope of the research consisted of 64 lecturers and 1644 students from TEF in the academic year of 2007-2008. The total sum of scope is consisted of 1708 subjects. The sampling of research is consisted of 22 lecturers and 204 students. The total sum of sampling consisted of 236 subjects. The rate of sampling to the total field is 34% in lecturers and 13% in students. Totally, the rate of sampling to scope is 13%.

FINDINGS AND INTERPRETATIONS

According to TEF's lecturers and student's perception, the TEF-SWOT-AQ which was developed in order to evaluate the efficiency of TEF and the findings which was gained with the interview technique was classified in Table 2 in order to find solution to the research problem using swot analysis technique properly.

As it is seen in Table 2, both students and lecturers render their opinions in view of TEF's efficiency on a

large scale of perception. Faculty's internal environment origin is restricted to strengths and weaknesses and external environment origin is restricted with opportunities and threats. The same findings, which are similar to declared features, are also mentioned in Komsuoglu *et al.* (2006) strategic planning [6].

CONCLUSION AND RECOMMENDATIONS

The importance of swot analysis is clear in providing unity in institutional practices. According to a research made by Holtz (2008), it is realized that in the music courses in the USA, 13 different programs are utilized and programs' level of reaching their short and long term goals and their features can be determined with this method [14]. It has been understood that declaration and explanation of accounts/institutional activities by the management facilitates the communication and strengthens the institution [15]. Consequently, where institutions

function can be realized with the attempts of administration and its efforts on researches and strategic planning [16]. Therefore institutions should make strategic planning of their internal and external environments. Otherwise, they may have to try to find solutions to the complex problems solely by giving credit to rumors [13].

The universities which adopt traditional management do not focus on student needs in the process of education and therefore in their systems; it appears as if there are some parts that need restoration. According to the traditional administration, importance rank is determined as; leaders, lecturers, students. But according to total quality management the importance rank is determined as; students, lecturers, teachers [17]. Setting innovative values instead of incorrect beliefs and values requires fundamental change in systems of aim and assets. The application of these depends on getting employees to comprehend and adapt new assets on a sufficient level [18]. Generally, it can be said that reformist developments take root more from dynamics that consist of pressures from external environment rather than internal dynamics [19]. According to Vaitkivicius (2007), managers tend to draw benefit from administration methods rather than findings of strategic analysis [20]. This case can give way to more governmental faults. Manager's general training in developing strategy is inadequate and drawing benefit from findings of strategic analysis methods, therefore, becomes important.

The results that are derived from research are taken into consideration to develop the suggestions below.

RECOMMENDATIONS

- C The problem of graduate's status problem should be solved and they should be given authority to sign to their own projects.
- C As the same courses are given with engineering departments, the necessary importance should be given to TEF.
- C Importance should be attached to industry-university collaboration manufacturer's conference and seminars should be provided.
- C Higher Education Council, Minister of Education and industrial producer should develop a strategic plan coordinately.
- C If there is a possibility for engineers to become a technical teacher, then the same opportunity should be given to technical teachers to become an engineer.

- C TEF's students and lecturers should be insured in case of any accident in laboratory and practice courses.
- C There should be a lecturer in practice courses that are made by research assistant.
- C While taking a decision, the student's wishes and expectations should be taken into consideration.
- C Courses in different technical education faculty should be similar.
- C The efficiency of activities in foreign language preparation class should be provided.
- C The students should not fail due to lack of attendance.
- C Students should be supported by directing them to production-oriented project.
- C Student should express their opinions freely.
- C The number of courses should be decreased.
- C The efforts that aim at increasing communication between individuals should be supported with social activities.
- C The importance should be attached to cleanliness of classrooms.
- C The services of canteen should be well-qualified.
- C The problem of reaching the faculty should be solved.
- C The presentation of TEF's should be made on a sufficient level.
- C To the several parts of faculty, there should be some works of fine arts such as; painting, picture, sculpture...etc.
- C Advertisement boards should be arranged in an efficient and functional way.
- C The salary and wages of lectures should be raised and the course hours of them should be diminished.
- C Research and techno-park units should be founded.
- C By giving place to production-oriented activities revolving fund should be strengthened.
- C By increasing the length of course of training in industry; the supervision by lecturer should be provided.
- C Supporting legal arrangements which enable graduates to set up their business should be made.
- C In order to prepare GOSE adequately; for 4th year students, the necessity of attendance should be repealed.
- C While determining GOSE point; with taking grade point average (GPA) into consideration; the specific percentage-weighted addition should be provided.

REFERENCES

1. Erk, N., Uzel, A. Gumus, Y. Ufuktepe, Y. Gurcinar, A. Yalcin, O. Aksogan, M. Kumlu, N. Evliyaoglu and I. Ortas, 2005. (Cukurova Universitesi Stratejik Planlama Komitesi Calismalari. [Studies of strategic planning committees of Cukurova University]. [http://eua.cu.edu.tr/Files/cuspkcalismalar.Ppt # 258, 3, Slayt 3](http://eua.cu.edu.tr/Files/cuspkcalismalar.Ppt#258,3,Slayt3) [2008, June 20].
2. Karaagac, M., 2007. Stratejik planlama calismasi, stratejik planlama. [The study of strategic planning]. <http://www.cumhuriyet.edu.tr/strateji/dosyalar/belge-461.ppt>. [2008, April 22].
3. Alpkan, L., 2008. Uzgoru çalõmasõnõn kavramsal cercevesi ve yontemi. Kocaeli Sanayii Icin Teknolojik Uzgoru Raporu. [Conceptual frame and method of vision study]. [Swot-Dr.LAlpkan.pdf].
4. Uludag Universitesi, 2008. Stratejik Planlama. [Strategic planning]. <http://www20.uludag.edu.tr/~kurullar/GPK/StratejikPlanlamaSunusu.ppt#275,19,MisyonBildirim>. [2008, May 20].
5. Yodek, 2007. Yuksekogretim Kurumlarinda Akademik Degerlendirme ve Kalite Gelistirme Rehberi. [Higher Education Council Academic Evaluation and Quality Development Committee]. <http://www.yodek.org.tr/yodek/files/beda164ce42cf0fca9bea200ab9037f6.doc> [2008, June 9].
6. Komsuoglu, Y. Kishalõ, H. Comak, Y. Guney, S. Bostanci, A. Demirci, N. Genc, A. Demir, M. Koksall, T.I. Ozturk, I. Sahin, N. Oltin, E. Caliskan, O. Yalcin, T. Kosucu, F. Demir and M. Kuscuu, 2006. Kocaeli Universitesi 2006 Stratejik Planõ. [The strategic planning of Kocaeli University 2006]. <http://www.kocaeli.edu.tr/rektorluk/hedef1.htm>. [2008, May 12].
7. Komsuoglu, S.S., 2008. Ozgur Kocaeli Gazetesi. [Daily Newspaper]. <http://www.ozgurkocaeli.com.tr/index.php?ayear=2008&amonth=9&aday=4>. [2008, September 4].
8. Grolmann, P., S. Gottlieb and S. Kurz, 2003. Co-operation between enterprises and vocational schools – Danish prospects. *ITB – Forschungsberichte*. 13/2003 July. [Susanne Gottlieb.pdf].
9. Wikipedi, 2008. <http://en.wikipedia.org/wiki/AlbertSHumphrey> [2008, June 2].
10. Ucar, D. and A.O. Dogru, 2005. CBS Projelerinin stratejik planlamasi ve swot analizinin yeri. [The project of CBS and the place of swot analysis]. TMMOB Harita ve Kadastro Muhendisleri Odasõ 10. Turkiye Harita Bilimsel ve Teknik Kurultaiõ. 28 March-1 April 2005, Ankara.
11. Quint, J.C., T.M. Akey, S. Rappaport and C.J. Willner, 2007. Instructional Leadership, Teaching Quality and Student Achivement. Mdrç Building Knowledge to Improve Social Policy. [Instructural Leadership. pdf]
12. Shinno, H., H. Yoshioka, S. Marpaung and S. Hachiga, 2006. Quantitative swot analysis on global competitiveness of machine tools industry. *J. Eng. Design*, (17) 3: 251-258.
13. Daake, D., D.D. Dawley and Anthony, 2004. Formal data use in strategic planning: An organizational field experiment. *J. Managerila Issues*. (XVI). 2: 232-247.
14. Holtz, G., 2008. Evaluating the effectiveness of school instrumental programs. *Teaching music 20010101*, (9) 3. Swot\EBSCOhost.mht.
15. Perez, E.B., J.M. Gonzalez and A.L. Gallardo, 2008. Organizational control system in a continuous improvement environment: Special reference to the role of Management accounting. *J. Accounting-Buss. Manage.*, 15: 1-32.
16. Tolmie, F., 2005. The HEFCE guide to strategic planning: the need for a new approach. *Perspectives*, 4(9): 110-115.
17. Sagbas, A. and Y. Zeren, 2008. Muhendislik egitiminde kalite kulturu icin swot analizi. [Swot analysis for quality control in engineering training]. <http://egitim.mmo.org.tr/main/bildiri/Aysun%20SagbasYusuf%20ZEREN.pdf> [2008, June 30].
18. Qian, L., L. Qi and C.Y. Cheng, 2008. Analysis on enterprise strategy thought based on the valuation innovation. *School of Management, Xi'an University of Architecture & Technology, Xi'an 710055, China. China. USA Buss. Rev.*, 2(7): 62-66.
19. Guthrie, W.J., 2008. Next needed steps in the evaluation of American education finance and policy: Attenuating a judicially imposed policy distraction, activating a balanced portfolio of K-12 schools reforms advancing rationality as a goal in pursuing productivity, advocating change in a responsible and affective manner. *Peabody J. Edu.*, 83: 259-284.
20. Vaitkevicius, S., 2007. Application of management tools in Lithuania: Managers' knowledge and experience. *Engineering Economics. Work Humanism*, 4(54): 70-77.