

## **USING ANALYTIC HIERARCHY PROCESS FOR SELECTING THE APPROPRIATE HOST COUNTRY TO STUDY ENGLISH LANGUAGE ABROAD**

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### **-Abstract-**

This paper deals with application of Analytic Hierarchy Process (AHP) for selection of an appropriate host country for further English language education abroad. The main sample of this study was chosen from Turkish Students who were newly graduated from Akdeniz University. Host country selection process includes the identification of relevant criterions which found necessary by demanders such as; easy application procedure, low expenses for education and daily life, security level of city life, level of social-cultural life, easy travel connection between home and host countries. The described process also includes the identification and evaluation of candidate English speaking host countries such as; the United States of America, England, Canada, Australia, New Zealand and Malta with the quest for consensus among multiple decision makers. The hierarchical model was designed in such a way and the experiences in implementing and using the model are discussed.

**Key Words:** *Multiple criteria decision making, Analytic hierarchy process, Study abroad*

**JEL Classification:** *C02, F23*

### **1. INTRODUCTION**

The globalization of every type of business through strategic alliances necessitates a critical review of the graduate curriculums to determine how departments of the universities are meeting the needs of students' as future employees in the international marketplace (Ames and Houston, 2001). As it is stated out by Wolf and Schaffer (2000), beside holding a university degree, it should be underlined that having some desirable skills such as good ethics, strong communication skills, computer expertise, knowledge of international cultures and customs supported with an international language for the new employees if they want to compete internationally. As Evelyne Feltz, director of In Lingua, an international language training center for business noted, "Culture and foreign language are not to be ignored... You could make a faux pas or mistake and offend someone and make them not want to do business with you (Mallory, 2000, p.R5). According to the President of University of Georgia, Michael F. Adams, economic growth of a territory has close tights both with export and import opportunities which should be supported by the workforce who

with the overseas experience (Adams, 2001, p.D). Whatever they named it as strategic alliances or trade unions such as North American Free Trade Agreement-NAFTA, European Union-EU, trade partnership of some Asian countries which is still under construction as Shanghai Cooperation Organization or BRIC countries as the constitutional partnership of Brazil, Russia, India and China in global, the local and international trade are globalizing enormously since the political barriers collapsed a few decade ago.

Together with these changes, trade connection volume between Turkish and the world economy since the mid of 80's are expanded, and the necessity of well educated people for internationally operating companies is risen from day to day. Beside the importance of having a university diploma from one of the state universities in Turkey, it is also getting more important for these graduates knowing at least one foreign language with the requirements of international standards. Despite it is planned and it tried to be taught with the programs by the Ministry of National Education to the students during their first and secondary school periods, learning a foreign language with a proper way is still an important problem for the students. This chronic situation is almost the same for them during their university education except those who have the opportunity of studying at the universities in which lectures are given in a foreign language.

The English language is the most widely taught foreign language in the world and chosen most often as the first foreign language to be studied. While the position of English language in international business, as well as in science and technology, makes it a global language, there is a great demand for improving the level of their English knowledge from the newly graduated citizens of many non-English-speaking countries. Mainly based for this reason, the selection of an appropriate host country for an English language course programme abroad is an important process both for the demanders and service providers who run their businesses in this field at home country. Unfortunately, the selection process is sometimes perfunctory, with last moment decisions made based on quickly asking through available service provider companies or institutions at home country.

This paper describes an attempt at using a formal procedure for host country selection, based on the Analytic Hierarchy Process (AHP) utilizing the software package Expert Choice and is organized as follows. The next section contains a brief description of studying abroad. Section 3 is a brief introduction to AHP explanations. Section 4 formulates an AHP model for selecting the appropriate host country for studying English language with its numerical indicators. The last section makes a conclusion of the study and discusses about the future researches.

## **2. STUDY ABROAD AND INTERNATIONAL CONSULTANCY SERVICES**

### **2.1. General Reasons to Study Abroad**

Study abroad provides students and newly graduated ones a competitive advantage on the global market place. The evidence for internationalizing the curriculum is clear. More the expansion of global trade between the countries of all types, it becomes almost a must for the international companies to employee staff who educated as multicultural and multilateral. When firms and their employees appreciate the importance of understanding cross-cultural communications in business negotiations, sales and other business related activities, opportunities flourish (Ames and Houston, 2001). As Volcan (2000) said, "it was a great opportunity to learn, understand and analyze the

foreign infrastructure on both the social and business level... The ways we think at home to solve the business problems are almost totally different at outside world. So, to survive and be successful, "trust" must be created before any business talk and be patient to conduct a deeper discussion in the language of possible business partner.

In a study conducted by the Institute of International Education in USA, it is pointed out that the over 223,000 U.S. students annually study abroad for academic credit, and there are widespread calls to double or even triple that number in the coming decade, sending students to more diverse destinations around the globe (Institute of International Education, 2008, p.5). According to the results of an online survey conducted between September and December 2007 of over 500 higher education institutions located in different world regions, one of the key findings indirectly related with this study is, increasing number of overseas institutions are now offering courses taught in English in a wide range of academic fields and even more U.S. students are studying foreign languages beside with this opportunity (Bhandari and Chow, 2007). In the same study, it is reported that, responding institutions offer three broad categories for an international student as; undergraduate, graduate/postgraduate, and non-degree programs.

As it is related indirectly with the concept of our study, it will be useful to give some details about the duration of non-degree programs offered by host institutions responded to the mentioned survey. Duration of non-degree programs can be categorized as "Full Academic Year", One Academic Session", "Two Months" and "Less Than Two Months".

According to another study, many of the U.S. students participate in short-term study abroad, which include summer, January term, any program of eight weeks or less during the school year (<http://opendoors.iienetwork.org>). This number is getting bigger over the past few years, and this trend for the short term study is named as "semester-abroad" instead of "study-abroad". The "semester-abroad" model now attracts %37 of those studying abroad, and only %6 spend a full academic or calendar year abroad.

## **2.2. Some Socioeconomic Indicators and Language Education in Turkey**

While criticizing the Turkish Educational System's inadequacy for language education, some indicators should be figured out and taken into account related with the socioeconomic structure, youth and education.

- Socioeconomic Indicators of Turkey:

- Total population; 73.000.000 (3rd biggest in Europe after Russia and Germany)
- Expected GNP in 2009; 411 billion USD (World's 17th biggest economy)
- Per capita income; 5.900 USD
- Young population's average age; 28,1
- Young population's ratio in total population; %52,7

- Educational System of Turkey:

- Primary education; 8 years (Mandatory and will be 12 years soon)

- High school education; 4 years (2006-2007 was the last year for 3 year education)
- Necessity of Language Education:
- Research conducted by EF Turkey on 12.000 people shows (<http://www.ef.com>):
- Level of English upper intermediate or above - only 84 out of 12.000 (%0,7)
  - %90 of these people prefer study abroad for language education
  - Tuition for a 4 month English course in Turkey; 900 – 1.500 USD
- Difficulties for University Education
- Central Examination for University Entrance Organized by Higher Education Council;
- Applications in 2007 equal; 1.615.534
  - Students placed in 4 year programs; 207.328 (%12,83)
  - Tuitions fees for Private universities; 9.000- 20.000 USD

### **2.3. International Consultancy Services in Turkey**

Above mentioned indicators and difficulties related with language education and study abroad are caused consultancy services' establishment in big cities of Turkey. And the increasing of these services within time made it necessary to constitute "The Association of International Education Counselor Turkey-AIECT". This new establishment's goal is to create a definite standard for international educational consulting sector.

AIECT is an organization which joins together Turkey's leading international educational consulting firms and was formed in 2001 by 15 companies committed to maintaining high quality and professional standards in advising thereby ensuring an exceptional service for students that want to pursue their education abroad. And, its mission is to determine the most suitable programs according to students' criteria by acting as a bridge between foreign educational institutions and students who want studying abroad.

The aims of AIECT is to ensure the quality level of member companies be constant by facilitating their adaptation to the recent changes in sector to help students who want to apply foreign schools directly by orienting them toward reliable institutions to minimize the problems that they can face because of the weak information and bad purposes to protect foreign education institutions from the possible damages of insufficient representation.

Being as the only authorized association and accredited by the state and public organizations, AIECT has the legal rights to censure its members while bringing together Turkey's leading educational agents in 11 different cities. AIECT's 31 members account for the %45 of the market share. The members of the association have about 14 years of experience on average with bringing together more than 210 educational consultants. Together with these AIECT has pointed the some specific problems in the sector as; no specific regulations governing the industry, insufficient knowledge and experience and no follow up.

Based on the results of AIECT questionnaires (<http://www.ued.org.tr/en/sayfalar.asp>) most important problems faced by Turkish students are; lack of Information %33, visa procedures %12, need an institution which can help them to find reliable agencies %34, help them if they face any problem because of the services of these agents %24, inform them about study abroad and procedures %23. Being the only private institution, AIECT has some basic objectives in its agenda as; to standardize the sector in Turkey, to help improve the service quality for customers, to ensure best practices among member, to facilitate its members' adaptation to recent changes in the sector (<http://www.ued.org.tr>).

### **3. MULTI-CRITERIA DECISION ANALYSIS FOR COMPLEX PROBLEMS**

Frequently, decision making problems faced by managements or sometimes individuals involve multiple criteria/objectives/attributes. Over the years, many quantitative methods have been developed to solve these types of complex problems and to facilitate making rational decisions involving multiple criteria (Abdullah and Rafikul, 2006).

#### **3.1. Multi-Criteria Decision Making Tools**

Multi-Criteria Decision Analysis (MCDA), sometimes called Multi Criteria Decision Making (MCDM), is a discipline aimed at supporting decision makers who are faced with making numerous and conflicting evaluations. MCDA aims at highlighting these conflicts and deriving a way to come to a compromise in a transparent process. Since MCDA involves a certain element of subjectiveness, the morals and ethics of the researcher implementing MCDA play a significant part in the accuracy and fairness of MCDA's conclusions (<http://sites.google.com/site/mcdafreeware/>).

The ethical point is very important when one is making a decision that seriously impacts on other people, as opposed to a personal decision. Some of the MCDA methods are: Analytic hierarchy process, Inner Product of Vectors, Multi-attribute value theory, Multi-attribute utility theory, Multi-attribute global inference of quality, Goal programming, ELECTRE, PROMETHÉE, Data Envelopment Analysis, The evidential reasoning approach, Dominance-based Rough Set Approach, Aggregated Indices Randomization Method, Nonstructural Fuzzy Decision Support System, Grey Relational Analysis, Superiority and Inferiority Ranking Method (Chan and Tong, 2007, p.1539-1546). The choice of which model is most appropriate depends on the problem at hand and may be to some extent dependent on which model the decision maker is most comfortable with.

#### **3.2. Analytic Hierarchy Process (AHP)**

The Analytic Hierarchy Process is a structured technique for dealing with complex decisions. Rather than prescribing a "correct" decision, the AHP helps the decision makers find the one that best suits their needs and their understanding of the problem. Based on mathematics and psychology, it was developed by Thomas L. Saaty in the 1970s and has been extensively studied and refined since then.

The AHP provides a comprehensive and rational framework for structuring a decision problem, for representing and quantifying its elements, for relating those elements to overall goals, and for evaluating alternative solutions. It is used around the world in a wide variety of decision situations, in fields such as government, business, industry, healthcare, and education.

Users of the AHP first decompose their decision problem into a hierarchy of more easily comprehended sub-problems, each of which can be analyzed independently. The elements of the hierarchy can relate to any aspect of the decision problem—tangible or intangible, carefully measured or roughly estimated, well- or poorly-understood—anything at all that applies to the decision at hand.

Once the hierarchy is built, the decision makers systematically evaluate its various elements by comparing them to one another two at a time. In making the comparisons, the decision makers can use concrete data about the elements, or they can use their judgments about the elements' relative meaning and importance. It is the essence of the AHP that human judgments, and not just the underlying information, can be used in performing the evaluations (Saaty, 2008).

The AHP converts these evaluations to numerical values that can be processed and compared over the entire range of the problem. A numerical weight or priority is derived for each element of the hierarchy, allowing diverse and often incommensurable elements to be compared to one another in a rational and consistent way. This capability distinguishes the AHP from other decision making techniques. In the final step of the process, numerical priorities are calculated for each of the decision alternatives. These numbers represent the alternatives' relative ability to achieve the decision goal, so they allow a straightforward consideration of the various courses of action.

While it can be used by individuals working on straightforward decisions, the Analytic Hierarchy Process (AHP) is most useful where teams of people are working on complex problems, especially those with high stakes, involving human perceptions and judgments, whose resolutions have long-term repercussions (Bhushan and Kanwal, 2004). It has unique advantages when important elements of the decision are difficult to quantify or compare, or where communication among team members is impeded by their different specializations, terminologies, or perspectives. Some decision situations to which the AHP can be applied include; Choice, Ranking, Prioritization, Resource allocation, Benchmarking and Quality management (Forman and Saul, 2001).

#### **4. AN AHP APPLICATION IN SELECTING THE APPROPRIATE HOST COUNTRY**

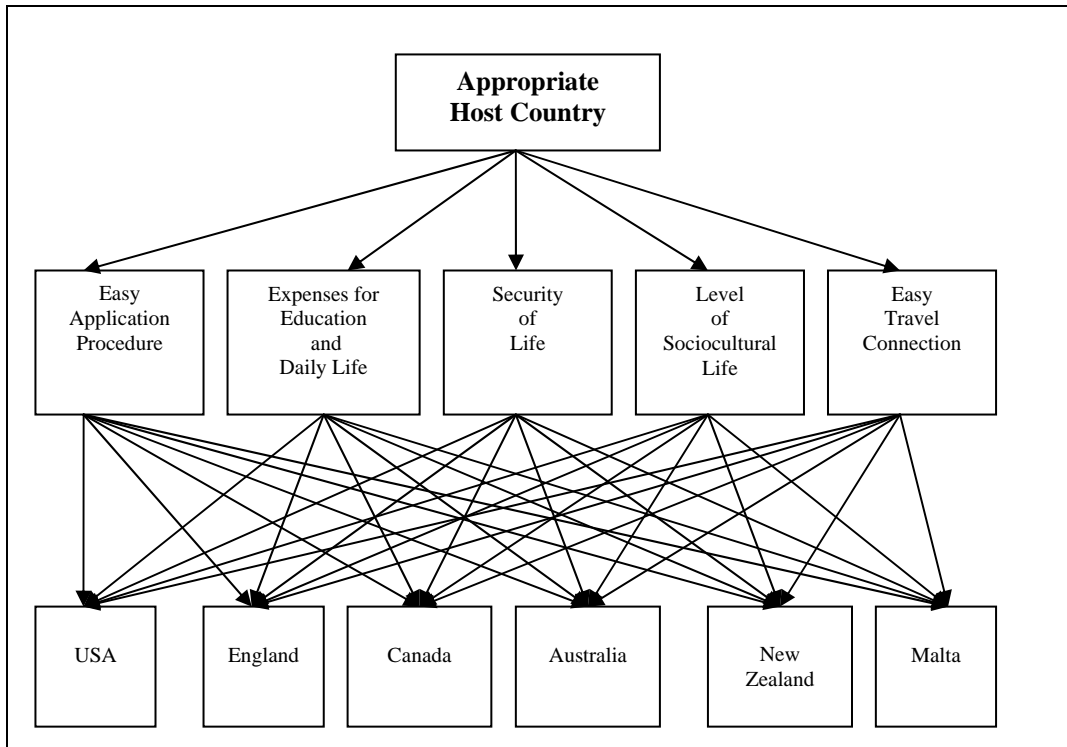
In determining best act among multiple options, various evaluation or measuring methods are used for various purposes. In this section of the paper, an AHP application is used in selecting the appropriate host country to study abroad. The act of selecting the most appropriate host country brings its difficulties while there are many numeric and nonnumeric criteria to be compared pairwise during the determination process.

##### **4.1. Main Criteria and Alternatives**

Firstly, criteria and alternative goal countries are discussed and defined by the experts of the International Affairs Office of Akdeniz University and by the experts of a private language course which has the international accreditation. The outcome of this group discussion was formed with focusing on goal as “Appropriate Host Country” with the criteria; as “Easy Application Procedure”, “Expenses for Education and Daily Life”, “Security of Life”, “Level of Sociocultural Life” and “Easy Travel Connection”. As English speaking countries; England, USA, Canada, Australia, New Zealand and Malta were chosen to be the alternative host countries to study abroad. Although there were some other English speaking countries such as South Africa, Ireland, etc.,

they were not taken into account as the accepted ones, due to insufficient educational relationships as the sending and receiving countries. And, the proposed Analytic Hierarchic Process model was drawn as seen in Figure-1.

**Figure-1: AHP Flowchart of Selecting the Most Appropriate Host Country**



**4.2. Forming Pairwise Comparison Matrices and Obtaining Priority Vector**

Pairwise comparisons are performed with the guidance of Saaty’s “1-9 Scale AHP preference” as given in Table-1. These comparisons are made with respect to the given criterion of the control hierarchy and importance weights of each factor are calculated. In pairwise comparison, decision makers who have the expertise knowledge on related subject compare the elements in pairs. The level of importance and their definitions are given with the detailed explanations from 1 to 9 in Table-1 with the reciprocals for inverse comparisons. The calculated values of pairwise comparisons are allocated in the columns of pairwise comparison matrix and priority vector is derived from eigenvector. As it is seen in Table-2, a group of experts’ knowledge is tabulated as pairwise comparison matrix related with “Easy Application Procedure Criteria” indicating the inconsistency ratio (0,010) in the last row of the table.

**Table-1: Saaty's 1-9 Scale for AHP Preference**

Level of Importance and definitions	Explanations
1 : Equal importance	Importance of elements are <b>equal</b>
3 : Weak importance	First element is <b>moderately</b> more important than second one
5 : Strong importance	First element is <b>strongly</b> more important than second one
7 : Importance over the other	First element is <b>very strongly</b> more important than second one
9 : Absolute importance	First element is <b>extremely</b> more important than second one
2, 4, 6, 8 : Intermediate values	Intermediate values <b>between</b> above mentioned values
1/3, 1/5, 1/7, 1/9 : Reciprocal	Reciprocals for <b>inverse</b> comparisons

Source: Yurdakul, 2003; Cheng and Li, 2001.

**Table-2: Pairwise Comparison Matrix of Easy Application Procedure Criteria**

	USA	England	Canada	Australia	New Zealand	Malta	Relative Priorities
USA	1	1/2	1/3	1/3	1/5	1/8	<b>0,039</b>
England	2	1	3	3	3	4	<b>0,063</b>
Canada	3	1/3	1	1/3	1/4	1/5	<b>0,115</b>
Australia	3	1/3	3	1	1/2	1/4	<b>0,245</b>
New Zealand	5	1/3	4	2	1	1/4	<b>0,316</b>
Malta	8	1/4	5	4	4	1	<b>0,221</b>
Inconsistency Ratio = 0,010							

Although tables for other criteria are not printed in this paper due to space constraint, their "Relative Priorities" are given in related criteria columns of Table-3 with their inconsistency ratios in the last row. As it can be concluded from Table-3, every criterion has the different priorities on the alternative countries.

**Table-3: Priorities of Goal Host Countries According to Criteria**

	Easy Application Procedure	Expenses for Education and Daily Life	Security of Life	Level of Sociocultural Life	Easy Travel Connection
USA	0,039	0,055	0,039	0,067	0,135
England	0,063	0,074	0,063	0,370	0,444
Canada	0,115	0,089	0,115	0,151	0,064
Australia	0,245	0,171	0,245	0,190	0,048
New Zealand	0,316	0,263	0,316	0,093	0,029
Malta	0,221	0,348	0,221	0,129	0,280
<b>Inconsistency Ratio</b>	0,010	0,010	0,020	0,030	0,010

As a final step, with the conclusions of the answers gathered from the graduates, the cells of a comparison matrix of criteria for appropriate host countries (Table-4) are filled. While forming Table-4, priorities of Table-3 are used together with the "Relative Priorities of Criteria" which were calculated from the pairwise comparison of criteria using generalized answer of the



graduates. According the results given in Table-4, relative priorities for alternative countries are found as; (0,055), (0,122), (0,101), (0,188), (0,250) and (0,285), for USA, England, Canada, Australia, New Zealand and Malta, respectively. It is quite easy to determine best alternative (appropriate host country to study abroad) from these results. It can be clearly seen that Malta has the best priority score and can be said that it is the most suitable host country.

**Table-4: Comparison of Criteria for Goal Host Countries**

	Easy Application Procedure	Expenses for Education and Daily Life	Security of Life	Level of Sociocultural Life	Easy Travel Connection	Relative Priorities
<b>Relative Priorities of Criteria</b>	0,048	0,483	0,297	0,106	0,066	
USA	0,039	0,055	0,039	0,067	0,135	<b>0,055</b>
England	0,063	0,074	0,063	0,370	0,444	<b>0,122</b>
Canada	0,115	0,089	0,115	0,151	0,064	<b>0,101</b>
Australia	0,245	0,171	0,245	0,190	0,048	<b>0,188</b>
New Zealand	0,316	0,263	0,316	0,093	0,029	<b>0,250</b>
Malta	0,221	0,348	0,221	0,129	0,280	<b>0,285 ✓</b>

## 5. CONCLUSION

Students or newly graduated ones who are going to be participated in a language course abroad supported with the multicultural facilities would utilize their cross-cultural experiences to expand their international employment opportunities or career development activities. Without their prior study-abroad experience, they would not have been accepted in the international work environment in and out of their country. The Analytic Hierarchy Process (AHP) is a methodology with the broad usage that allows interaction and feedback in multiple criteria decision-making systems.

In this paper, we have determined the most appropriate host country among the six alternatives (USA, England, Canada, Australia, New Zealand and Malta) using AHP methodology. In the application section of the study, the AHP model of the problem is structured with the predefined and evaluated criterions; as “Easy Application Procedure”, “Expenses for Education and Daily Life”, “Security of Life”, “Level of Sociocultural Life” and “Easy Travel Connection”. The pairwise comparison matrix formed based on the knowledge of an expert group and the customer expectations vector derived from the graduates are used to find the weights of host country options. We discovered that, choosing Malta as the host country is the best alternative with relative priority 0,285.

On the other hand, this model should be evaluated carefully due to flexible values of its criteria and criteria composition which can be changeable in the near future with the changeability of economic and politic conjunctures.

## BIBLIOGRAPHY

Abdullah, N.A. and Rafikul I., (2006), "Management Decision Making by the Analytic Hierarchy Process: A Proposed Modification for large-Scale Problems", *Journal of International Business and Entrepreneurship Development*, p.18-40.

Adams, Michael F. (2001), State of the University 2001, Columns. 28. No. 18, January, 16:A-D.

Bhandari, R. and Chow, P. (2007), *Open Doors 2007: Report on International Educational Exchange*. New York: Institute of International Education.

Bhushan, N. and Kanwal R., (2004). *Strategic Decision Making: Applying the Analytic Hierarchy Process*, London: Springer-Verlag.

Chan WK. and Tong TKL, (2007), "Multi-criteria material selections and end-of-life product strategy: Grey relational analysis approach", *Materials & Design*, Volume 28, Issue 5, Pages 1539-1546

Cheng, E. W. L. and Li, H., (2001), "Analytic Hierarchy Process an Approach to Determine Measures for Business Performance", *Measuring Business Excellence*, 5, 30-36.

Glenn C.W. Ames and Jack E. Houston, (2001), "Establishing an Agribusiness Study Abroad Course in Mexico: A Project in Internationalizing the Curriculum, August 5-8", *American Agricultural Economics Association Annual Conference*, Chicago, IL

Forman, E. H. and Saul I. G., (2001). "The analytical hierarchy process—an exposition". *Operations Research* 49 (4): 469–487. doi:10.1287/opre.49.4.469.11231.

IIE Study Abroad White Papers Series, (2008), "Exploring Host Country Capacity for Increasing U.S.", *Study Abroad Institute of International Education*, Issue Number 2, May.

Mallory. M., (2000), "A Second Language Improves Your Options", *the Atlanta Journal and Constitution*. October, 29. R1 and R5.

Saaty, Thomas L. (2008), "Relative Measurement and its Generalization in Decision Making: Why Pairwise Comparisons are Central in Mathematics for the Measurement of Intangible Factors -The Analytic Hierarchy/Network Process". *RACSAM (Review of the Royal Spanish Academy of Sciences, Series A, Mathematics)*, 102 (2): 251–318.

Volcan, I., (2000), Letter Addressed to Mtro. Raul Rivadeneyra S., Facultad de Ciencias Administraativas Y Sociales. Xalapa, Veracruz, Mexico. June 7.

Wolf, M.W. and Schaffner, D.J., (2000), "Curriculum Development: Starting with the Marketplace", *NACTA Journal*, September: 60-70.

Yurdakul, M., (2003), "Measuring Long-Term Performance of a Manufacturing Firm Using the Analytical Network Process (ANP) Approach", *International Journal of Production Research*, 41, 2501-2529.

<http://sites.google.com/site/mcdafreeware/> [Accessed 11.05.2009]

<http://www.ef.com.tr/master/ils/news/> [Accessed 12.06.2009]

<http://www.ued.org.tr/en/sayfalar.asp> [Accessed 05.06.2009]