APPLYING ANALYTICAL HIERARCHICAL PROCESS METHOD IN SELECTING ACCOUNTING MANAGER

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Abstract
The purpose of this study is to carry out the nomination process to be an Accounting Manager via using Analytical Hierarchical Process (AHP). The occurrence reason of this study is the recruitment demand of an Accounting Manager Position for a 4 star hotel. In the study, firstly the influencing factors fort he election of Accounting manager is determined and decision hierarchy is formed. Questionnaires were prepared In accordance with decision hierarchy then, from 5 professors it is requested to array main and sub criteria within themselves by taking into account their significance levels using pairwise comparison matrix. Questionnaires were conducted by face-to-face interview method. Because many evaluators took place in decision process the geometric mean of the 5 professors answers were calculated and each comparison was turned into one matrix. Within this framework, criteria were weighted with AHP Method and relative weights for each criterion were determined. After determining the criteria weights, 8 students who are studying in MA programme in tourism management department and are candidates for the related position were determined as an alternative. Candidates were compared based on each criterion, which takes place in decision hierarchy, by using candidates' interview forms and CVs. Therefore; the model was applied in the 4 star hotel demanding Accounting manager and 2 candidates were determined in relation with the criteria in decision hierarchy and were directed to the hotel. The study presents a structure for selecting a manager as an Accounting manager or related positions.
Keywords Personnel Selection, Analytic Hierarchy Process, AHP

INTRODUCTION

Multi-criteria decision making methods are subject to various managerial decisions. One of these issues is the problem of staff selection. Most businesses have begun to focus on analytical methods of staff selection to get rid of personal assessment errors and make the right choice. Because multi-criteria decision-making methods provide a significant contribution to the objective and accurate conclusion of the decision-making process in cases where multiple evaluators and evaluation criteria are relevant. This is especially the case for enterprises with institutional character. The aim of this research was to apply the Analytic Hierarchy Process (AHP) method, which is one of the most critically accepted decision making methods, to the selection of personnel. Analytic Hierarchy Process, one of the multi-criteria decision-making methods, was developed by Thomas L. Saaty in the 1970's. The AHP method, which is basically based on binary comparisons, assesses the importance, preference level, or superiority of the options and criteria that are determined as a result of these two comparisons. AHP is one of the most widely used multi-criteria decision-making techniques since it takes into

consideration qualitative evaluation criteria as well as qualitative evaluation criteria (Özgörmüş et al., 2005: 25). The AHP is a quantitative metric for the decision maker to select the best of them by showing the relationship between a complex problem, goals, criteria, sub-criteria and alternatives. AHP, which is one of the multi-criteria decision-making methods, responds to the question "Which one?" (Ünal, 2011: 2).

The application process of AHP technique developed by Saaty (1970) consists of five phases. These stages are respectively; the creation of hierarchical structure (decision hierarchy), the creation of binary comparison matrices, the creation of normalized matrices (finding the importance of each factor), determining whether the matrices are consistent and determining their priorities (Erbasi, 2012: 166-168). The purpose of this research is to make a nomination process for the Accounting Manager position by using the Analytical Hierarchy Process (AHP) method. In this context, firstly the literature about the researches used in the selection of the personnel of the AHP method is given, followed by the methods, findings and results respectively.

1. LITERATURE REVIEW

Gibney and Shang's (2007) study of dean selection concluded that AHP was a useful tool for multiple decision making and could be used to select staff in academic units. A committee has been established primarily on dean selection. The committee identified the necessary competencies for the dean in the job description and formed the decision hierarchy. Leadership and resources are divided into two main criteria, which are divided into two sub-criteria among themselves and sub-criteria are examined by separating the criteria. The Committee has prioritized the factors affecting the dean's choice. According to this, the weights of leadership and resource factors were determined as 0.333 and 0.666 respectively, and as the result of the evaluation, the candidate who received the highest score among the descending candidates was proposed as the dean.

Retchless et al. (2007) aimed at selecting the best American general of the 20th century by using the AHP methodology in their study. As a result of the judgments that 10 decision makers had done with benchmarking, General George Marshall was elected the best general. In addition to this, the results obtained with purpose optimization and linear programming are compared with each other and the ordering is seen to be the same in taking group decision in working.

In their study of Islam and Rasad (2005), they used the AHP method to evaluate employees' performance. In this work they have been used as a criterion for quality and quality of work, planning and organization, initiative use, teamwork and cooperation, communication and external factors. In the study, each criterion is divided into 3 sub-criteria. In the study, the performance of 294 employees was evaluated according to the scoring method, and as a result, it was suggested that the process of using AHP in performance evaluation increased the reliability and accuracy.

Sale and Sale (2005) aim to construct the Balanced Scorecard method in their study. They used the AHP method for their work. As a result, they asserted that the use of AHP in the evaluation process provided internal consistency and the necessary theoretical basis for credibility.

In Bali and Gencer (2005) studies, the selection of teaching staff in the Military Academy was compared with the current system, as well as the AHP, fuzzy AHP (BAHP) and fuzzy logic results. The study was carried out on 7 criteria used in the present system, but existing criteria were gathered in two main groups as objective criteria and subjective criteria. General appearance, ability to understand and tell, leadership, discipline, family and social status, and psychological constructive criteria; Scientific competence constitutes the objective criterion. According to the judge that 5 decision makers had done, the ability to understand and tell was ranked first with 0.371 points, followed by psychological status with 0.055. The weight of the objective criterion was 0.4. Accordingly, the position of the first candidate in the sample does not change. However, according to the evaluation system based only on the subjective criteria, the candidate ranked first in the evaluation system and fifth in the evaluation made with fuzzy AHP, and fourth in the evaluation made with Fuzzy Logic. As a result, it is suggested that if one of the three methods can be used in the selection of the first and second personnel, but the third person is to be selected, it should be decided by considering the positive and negative aspects of these three methods.

McIntryre et al. (1990), it was aimed to establish a new executive candidate for the Department of Building Management and Engineering of North Dakota State University through the AHP method. In order to identify candidates, a selective committee consisting of student representatives, senior and junior faculty staff, and temporary lecturers was established. The requirements of the executive position to be selected are determined and criteria are defined by creating a hierarchy as required. Five criteria have been identified: management, teaching, research, services and industry. Binary benchmarks of the committee were weighted after the final criteria, and examination of the applications was followed by three candidate candidates with high ranking.

Teymur and Tüzüner (2006) used the AHP method to determine the factors affecting the selection of sales representatives in drug companies, 15 domestic and 12 international, operating in Turkey, according to their priorities. In the study, three main criteria were defined as personal qualifications, interpersonal skills and qualifications required for the job, and sub-criteria were determined depending on them. As a result, in the study, the "criteria required for work" were identified as the first priority criteria. There is no significant difference in terms of importance given to national and international criteria.

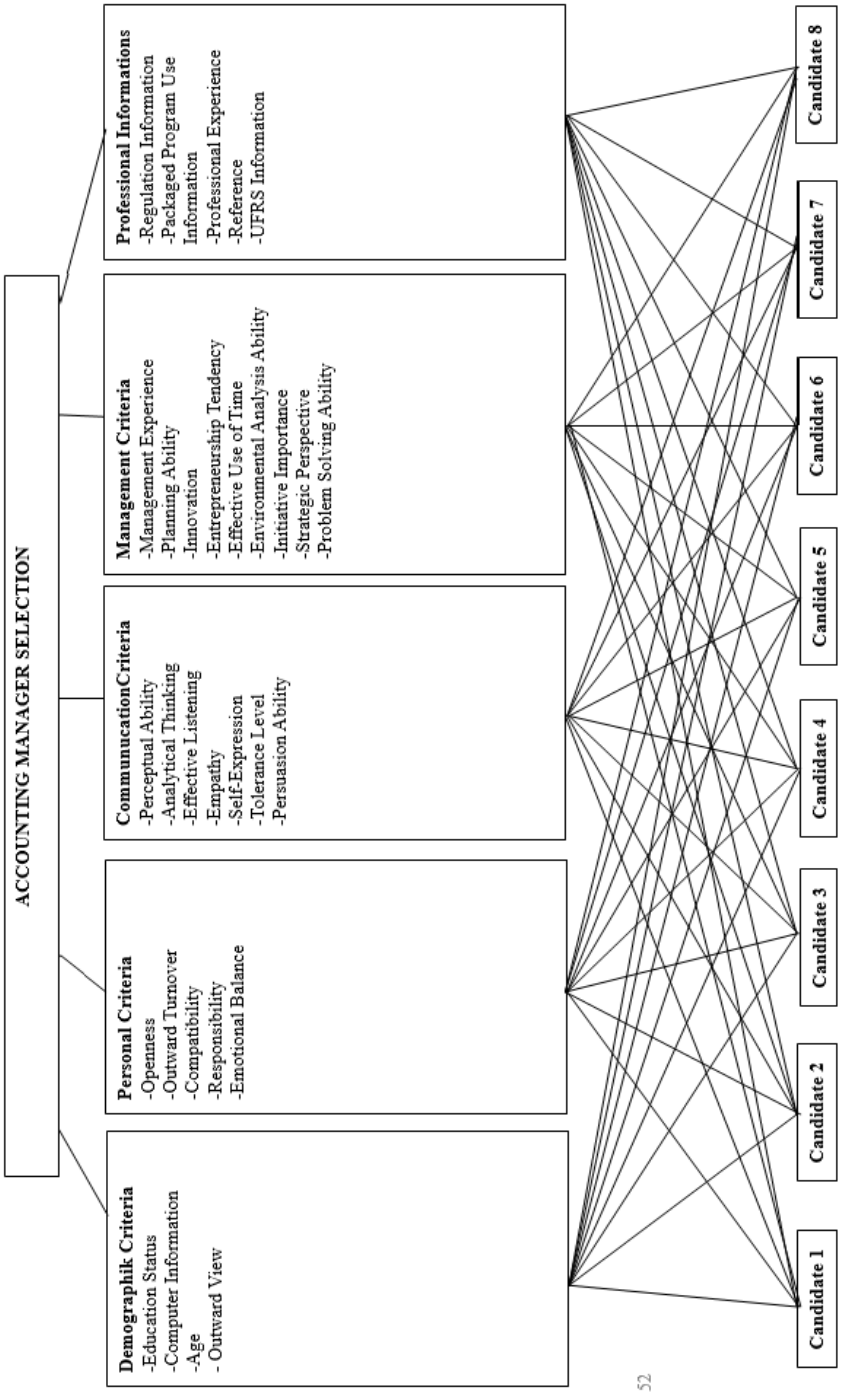
Cheng and Li (2001) used the AHP method to select the right element for marketing manager selection. Four main criteria were identified, including information about the study area, information about the job, information about the candidate's previous job, interview and other assessments, and sub-criteria were set based on these key criteria. As a result, it has been suggested that the AHP method is useful for companies to achieve their competitive goals.

2. METHOD

Factors affecting the selection of Accounting Manager were determined and a hierarchy of decision was established in the research. Questionnaires were prepared in accordance with the decision hierarchy and five main teaching and learning faculty members were required to rank each main and sub criteria in terms of their importance by using binary comparison matrices. The questionnaires were applied by face to face interview method. Since more than one evaluator took part in the decision process, the geometric mean of the answers given by the 5 faculty members was taken and each comparison was converted into a single matrize. In this context, the criteria are weighted by the AHP method and the relative weights of each criterion are determined. After the weights of the criteria were determined, 8 students who were studying in the field of Tourism Management and who were candidates for the related position were determined as alternatives in the research. Candidates' resume data and structured interview forms were used to compare candidates for each criterion in the decision hierarchy. The model thus created was applied to the selection of the 4-star hotel in the demanding Accounting Manager and based on the criteria in the decision hierarchy, 2 candidates were selected from the candidates and directed to the related hotel. While methodological fiction is being done, Unal (2010) 's work has been benefited. In figure 1, a model for accounting manager selection is included. In this model, the evaluation criteria are divided into 5 main criteria, demographic, personal, communication, management and professional information.

Demographic criteria; Education status, computer knowledge, age and external appearance. Demographic criteria were obtained from the job application form filled by alternatives. Personal criteria; Openness, outwardness, compatibility, responsibility, emotional balance. These sub-criteria were obtained through interviews applied to alternatives. Communication criteria; Perception ability, analytical thinking, effective listening, empathy, self-expression, tolerance level, persuasion ability. These sub-criteria were obtained through interviews applied to alternatives. Management criteria; Management experience, planning ability, innovativeness, taking initiative, using time effectively, ability of environmental analysis, entrepreneurship tendency, strategic point of view. While some of these sub-criteria were derived from the job application form filled in by alternatives, the remainder was obtained by interviewing the alternatives. Professional information criteria consist of four sub criteria: legislation information, package program use information, professional experience, reference. Professional information is obtained from the job application form filled by alternatives.

Figure 1: **Accounting Manager Selection Candidate Selection Decision Hierarcy**



3. RESULTS

Table 1: **Weighted Criteria for Binary Comparisons**

Basic Components	Criteria	Composite Weights of Criteria	Scale Weight	Scale	Composite Weights of Scale
DEMOGRAPHİC CRİTERİA (0,09)	Education Status 0,513570037	0,046221303	ÇY	0,558	0,025791487
			Y	0,263	0,012156203
			O	0,122	0,005638999
			D	0,057	0,002634614
	Computer Information 0,29900664	0,026910598	ÇY	0,558	0,015016113
			Y	0,263	0,007077487
			O	0,122	0,003283093
			D	0,057	0,001533904
	Age 0,143324055	0,012899165	30-35	0,197	0,002541135
			36-40	0,234	0,003018405
			41-45	0,485	0,006256095
			46+	0,084	0,00108353
	Outward View 0,044099267	0,003968934	İyi	0,429	0,001702673
			Orta	0,429	0,001702673
			Kötü	0,142	0,000563589
PERSONAL CRİTERİA (0,153)	Openness 0,363257835	0,055578449	ÇY	0,473	0,026288606
			Y	0,298	0,016562378
			O	0,142	0,00789214
			D	0,087	0,004835325
	Outward Turnover 0,083967208	0,012846983	ÇY	0,473	0,006076623
			Y	0,298	0,003828401
			O	0,142	0,001824272
			D	0,087	0,001117688
	Compatibility 0,149274351	0,022838976	ÇY	0,473	0,010802836
			Y	0,298	0,006806015
			O	0,142	0,003243135
			D	0,087	0,001986991
	Responsibility 0,363257835	0,055578449	ÇY	0,558	0,031012775
			Y	0,263	0,014617132

			O	0,122	0,006780571
			D	0,057	0,003167972
	Emotional Balance 0,040242771	0,006157144	ÇY	0,439	0,002702986
			Y	0,313	0,001927186
			O	0,124	0,000763486
			D	0,124	0,000763486
COMMUNİCATİON CRİTERİA (0,1)	Perceptual Ability 0,277817052	0,027781705	ÇY	0,473	0,013140746
			Y	0,298	0,008278948
			O	0,142	0,003945002
			D	0,087	0,002417008
	Analytical Thinking 0,277817052	0,027781705	ÇY	0,394	0,010945992
			Y	0,394	0,010945992
			O	0,137	0,003806094
			D	0,075	0,002083628
	Effective Listening 0,100887257	0,010088726	ÇY	0,394	0,003974958
			Y	0,394	0,003974958
			O	0,137	0,001382155
			D	0,075	0,000756654
	Empathy 0,040816867	0,004081687	ÇY	0,375	0,001530633
			Y	0,375	0,001530633
			O	0,125	0,000510211
			D	0,125	0,000510211
	Self-Expression 0,100887257	0,010088726	ÇY	0,473	0,004771967
			Y	0,298	0,00300644
			O	0,142	0,001432599
			D	0,087	0,000877719
	Tolerance Level 0,100887257	0,010088726	ÇY	0,473	0,004771967
			Y	0,298	0,00300644
			O	0,142	0,001432599
			D	0,087	0,000877719
	Persuasion Ability 0,100887257	0,010088726	ÇY	0,473	0,004771967
			Y	0,298	0,00300644
			O	0,142	0,001432599
			D	0,087	0,000877719

MANAGEMENT CRİTERİA (0,292)	Management Experience 0,141177	0,04122365	ÇY	0,558	0,023002797
			Y	0,263	0,01084182
			O	0,122	0,005029285
			D	0,057	0,002349748
	Planning Ability 0,141177	0,04122365	ÇY	0,473	0,019498786
			Y	0,298	0,012284648
			O	0,142	0,005853758
			D	0,087	0,003586458
	Innovation 0,038686	0,011296354	ÇY	0,3	0,003388906
			Y	0,3	0,003388906
			O	0,3	0,003388906
			D	0,1	0,001129635
	Initiative Importance 0,050892	0,014860401	ÇY	0,375	0,00557265
			Y	0,375	0,00557265
			O	0,125	0,00185755
			D	0,125	0,00185755
	Effective Use of Time 0,17718	0,051736524	ÇY	0,555	0,028713771
			Y	0,251	0,012985868
			O	0,097	0,005018443
			D	0,097	0,005018443
	Environmental Analysis Ability 0,052077	0,015206391	ÇY	0,375	0,005702397
			Y	0,375	0,005702397
			O	0,125	0,001900799
			D	0,125	0,001900799
	Entrepreneurship Tendency 0,031225	0,009117804	ÇY	0,375	0,003419177
			Y	0,375	0,003419177
			O	0,125	0,001139726
			D	0,125	0,001139726
	Strategic Perspective 0,183793	0,053667613	ÇY	0,473	0,025384781
			Y	0,298	0,015992949
			O	0,142	0,007620801
			D	0,087	0,004669082
	Problem Solving Ability 0,183793	0,053667613	ÇY	0,558	0,029946528
			Y	0,263	0,014114582
			O	0,122	0,006547449
			D	0,057	0,003059054

PROFESSİONAL INFORMATİON (0,365)	Regulation Information 0,165039872	0,060239553	ÇY	0,558	0,033613671
			Y	0,263	0,015843002
			O	0,122	0,007349225
			D	0,057	0,003433655
	Packaged Program Use Information 0,165039872	0,060239553	ÇY	0,558	0,033613671
			Y	0,263	0,015843002
			O	0,122	0,007349225
			D	0,057	0,003433655
	Professional Experience 0,165039872	0,060239553 (Manager 0,875 ; Personal 0,125)	3 ve 3+	0,667	0,035157309
			0-2	0,333	0,0175523
			3 ve 3+	0,667	0,005022473
			0-2	0,333	0,002507471
	UFRS Information 0,441786284	0,161251994	ÇY	0,558	0,089978613
			Y	0,263	0,042409274
			O	0,122	0,019672743
			D	0,057	0,009191364
	Reference 0,063094099	0,023029346	ÇY	0,375	0,008636005
			Y	0,375	0,008636005
			O	0,125	0,002878668
			D	0,125	0,002878668

∗ Consistency rates; Main criteria 0,01; Demographic criteria 0,087009717; Personal criteria 0,022383849; Communication criteria 0,007073245; Management criteria 0,03756372; Professional information 0,00945649

When Table 1 is examined, the main criterion with the most prevalence as a result of binary comparisons is occupational information (0.365). Professional Information was calculated as Management Criteria (0,292), Personal Criteria (0,153), Communication Criteria (0,1), Demographic Criteria (0,09) respectively. The consistency ratio in the binary comparison of the main criteria was calculated as 0.01 and the weights were found to be consistent. When the demographic criteria were examined, it would be possible to list the sub-criteria towards the one having the most pre- Education Status (0,513), Computer Information (0,299), Age (0,143) and Outward View (0,044). When the personal criteria are examined, it will be possible to rank the subcriteria towards the one with the most precaution and the one with the least precaution on the basis of binary comparisons; (0,149), Outward Turnover (0,083), and Emotional Balance (0,04) were calculated when the Responsibility and Openness Criteria (0,363) had equal predicates. When the communication criteria were examined, the results of binary comparisons showed that the highest If sub-criteria to sort; Perceptual Ability and Analytical Thinking (0,277), Effective Listening (0,1), Self-Expression (0,1), Tolerance Level (0,1), Persuasion Ability (0,1) and Empathy (0,04) When the management criteria are examined, it will be possible to rank the sub-criteria towards the one having

the highest priority and the one having the least priority in terms of the binary comparison; Strategic Perspective and Problem Solving Ability (0,183), Effective Use of Time (0,177), Management Experience and Planning Ability (0,141), Environmental Analysis Ability (0,052), Initiative Importance (0,05), Innovation (0,038), Entrepreneurship Tendency 0,031). When reviewing the data on the basis of the results of binary comparisons, it would be possible to rank the subcriteria to the one with the most precaution and the one with the least precaution; (0,165), Packaged Program Use Information (0,165) and Professional Experience (0,165), Reference (0,063). In Table 2, the importance values and the total values obtained for the criteria for each candidate Lt; / RTI & gt;

Table 2: **The importance values and the total values obtained for the criteria for each candidate**

Criteria	**C 1**	**C 2**	**C 3**	**C 4**	**C 5**	**C 6**	**C 7**	**C 8**
UFRS Information	0,0133	0,0175	0,0333	0,0287	0,0175	0,0614	0,0112	0,0091
Regulation Information	0,0107	0,0158	0,0300	0,0265	0,0124	0,0265	0,0073	0,0090
Packaged Program Use Information	0,0090	0,0124	0,0300	0,0300	0,0124	0,0229	0,0057	0,0057
Professional Experience	0,0025	0,0025	0,0025	0,0050	0,0025	0,0050	0,0025	0,0025
Responsibility	0,0130	0,0244	0,0277	0,0178	0,0130	0,0244	0,0114	0,0211
Openness	0,0243	0,0243	0,0243	0,0243	0,0165	0,0223	0,0113	0,0204
Problem Solving Ability	0,0080	0,0095	0,0172	0,0141	0,0095	0,0172	0,0058	0,0110
Strategic Perspective	0,0070	0,0058	0,0178	0,0197	0,0109	0,0126	0,0064	0,0064
Effective Use of Time	0,0082	0,0082	0,0224	0,0161	0,0050	0,0224	0,0050	0,0066
Education Status	0,0056	0,0056	0,0121	0,0121	0,0056	0,0257	0,0026	0,0056
Management Experience	0,0050	0,0050	0,0050	0,0108	0,0050	0,0108	0,0050	0,0108
Planning Ability	0,0058	0,0058	0,0180	0,0194	0,0097	0,0166	0,0084	0,0097
Analytical Thinking	0,0031	0,0034	0,0066	0,0109	0,0080	0,0109	0,0034	0,0027
Detection Ability	0,0065	0,0048	0,0102	0,0121	0,0082	0,0102	0,0065	0,0111
Computer Information	0,0032	0,0048	0,0150	0,0102	0,0055	0,0070	0,0040	0,0032
Reference	0,0028	0,0028	0,0086	0,0086	0,0028	0,0086	0,0028	0,0086
Compatibility	0,0039	0,0046	0,0092	0,0100	0,0039	0,0092	0,0039	0,0076
Environmental Analysis Ability	0,0019	0,0034	0,0049	0,0057	0,0019	0,0057	0,0019	0,0019
Initiative Importance	0,0033	0,0040	0,0055	0,0055	0,0040	0,0055	0,0026	0,0048
Age	0,0025	0,0030	0,0025	0,0030	0,0025	0,0030	0,0025	0,0062
Outward View	0,0030	0,0026	0,0042	0,0047	0,0026	0,0051	0,0022	0,0047
Innovation	0,0033	0,0033	0,0033	0,0033	0,0033	0,0033	0,0033	0,0024
Effective listening	0,0029	0,0034	0,0034	0,0039	0,0029	0,0039	0,0024	0,0039
Persuasion Ability	0,0012	0,0012	0,0026	0,0023	0,0023	0,0023	0,0010	0,0023
Self-Expression	0,0014	0,0033	0,0040	0,0044	0,0033	0,0040	0,0012	0,0037
Tolerance Level	0,0010	0,0012	0,0033	0,0037	0,0020	0,0040	0,0012	0,0012
Entrepreneurship Tendency	0,0025	0,0020	0,0034	0,0034	0,0029	0,0034	0,0020	0,0034

Criteria	**C 1**	**C 2**	**C 3**	**C 4**	**C 5**	**C 6**	**C 7**	**C 8**
Emotional Balance	0,0012	0,0022	0,0023	0,0025	0,0014	0,0022	0,0012	0,0027
Empathy	0,0009	0,0015	0,0015	0,0015	0,0015	0,0015	0,0011	0,0015
Outward View	0,0017	0,0017	0,0017	0,0017	0,0017	0,0017	0,0017	0,0017
Total	0,159	0,191	0,333	0,323	0,182	0,360	0,128	0,192

When Table 2 is examined, the importance weights and total scores of each candidate are obtained for each criterion. In this scope Candidate 6 and Candidate 3 with the highest score were directed to hotel management.

CONCLUSION

Human resource selection is a very important process for businesses. Because choosing the right human resource will mean that things are done correctly. The selection of human resources, which is usually made on the basis of subjective evaluations, causes some disagreements when the number of decision makers increases. In addition, decisions taken in this way are far from objectivity. It may be possible to use some multi-criteria decision-making techniques to take into account the ideas of all participants in the decision-making process and be objective. One of these methods is the AHP method. Through the use of multi-criteria decision making techniques such as the AHP method in human resource selection, decisions can be taken objectively, incorporating a large number of criteria, and based on the opinion of multiple decision makers. From these concerns, it is the intention of this research to make a nomination process for the Accounting Manager position by using the Analytical Hierarchy Process (AHP) method. The reason for the emergence of this research is that there are 2 nomination requests for the position of Accounting Manager of a 4 star hotel in Konya.

Factors affecting the selection of Accounting Manager were determined and a hierarchy of decision was established in the research. Questionnaires were prepared in accordance with the decision hierarchy and five main teaching and learning faculty members were required to rank each main and sub criteria in terms of their importance by using binary comparison matrices. According to these ranking results, when the criteria are ranked according to importance ratings; Strategic Perspective (0,053), Problem Solving Ability (0,053), Problem Solving Ability (0,053), UFRS Information (0,161), Legislation Information (0,060), Package Program Use Information (0,060), Professional Experience (0,060), Liability (0,051), Management Experience (0,041), Planning Skill0,041, Analytical Thinking (0,027), Perception Skill (0,027), Computer Information (0,026), Reference (0,023), Compatibility (0,022)), Environmental Analysis Ability (0,015), Initiative Importance (0,014), Age (0,012), Outward Turnover (0,012), Innovation (0,011), Effective Listening (0,010), Persuasion Ability (0,010), Self Expression (0,010) Tolerance Level (0,010), Entrepreneurship Tendency (0,009), Emotional Balance (0,006), Empathy (0,004) and Outward View (0,003).

The questionnaires were applied by face to face interview method. Since more than one evaluator took part in the decision process, the geometric mean of the answers given by the 5 faculty members was taken and each comparison was converted into a single matrize. After the weights of the criteria were determined, 8 students who were

studying in the field of Tourism Management and who were candidates for the related position were determined as alternatives in the research. Candidates' resume data and structured interview forms were used to compare candidates for each criterion in the decision hierarchy. Thus, the 4-star hotel in the requested model was applied to the selection of the Accounting Manager and based on the criteria included in the decision hierarchy, the candidate 6 and candidate 3 among the candidates were directed to the related hotel because they received the highest scores. The results of the application can be compared with the results obtained by using different analytical methods. It may also be possible to use the model created for other candidate evaluations besides Accounting Manager.

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