PERSONNEL SELECTION IN HOSPITALITY INDUSTRY WITH THE INTEGRATED ENTROPY-RAPS MODEL[1]

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ABSTRACT | The personnel selection and recruitment process are crucial in labour-intensive hospitality industry because the personnel are the most important resource that interacts closely with the guests and ultimately determines the performance of the organization. This study tackled the human resources manager selection problem at a five-star accommodation facility in Alanya, employing "Multiple Criteria Decision Making" (MCDM) methods. The characteristics that individuals applying for this position should possess were established through the opinions of hotel managers. The indicator weights and the rankings of candidates were established using the Entropy and RAPS methods, respectively. The study concluded that the model employed is well-suited for the process of selecting personnel. This study is seen as a valuable addition to the literature, as it marks the inaugural application of the Entropy-RAPS model in addressing personnel selection challenges.

Keywords: *Personnel selection, hospitality industry, MCDM*
JEL Codes: *C40, D81, C01*

Scope: *Bussiness administration*
Type: *Research*

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[1] Compliance with the ethical rules of the relevant study has been declared.

ENTROPY-RAPS ENTEGRE MODELİ İLE KONAKLAMA ENDÜSTRİSİNDE PERSONEL SEÇİMİ

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ÖZ | Personel seçimi ve işe alım süreci, işgücü yoğun konaklama sektöründe hayati öneme sahiptir çünkü personel, konuklarla yakın etkileşimde bulunan ve sonuçta organizasyonun performansını belirleyen en önemli kaynaktır. Çalışmada, Alanya'da faaliyet gösteren beş yıldızlı bir konaklama tesisinin insan kaynakları yöneticisi seçim sorunu, "Çok Kriterli Karar Verme" (ÇKKV) yöntemleri kullanılarak değerlendirilmiştir. Bu pozisyona başvuran bireylerin sahip olmaları gereken özellikler, otel yöneticilerinin görüşleri dikkate alınarak belirlenmiştir. Gösterge ağırlıkları ve adayların sıralamaları sırasıyla Entropy ve RAPS yöntemleri kullanılarak belirlenmiştir. Çalışma, kullanılan modelin personel seçimi süreci için uygun olduğu sonucuna varmıştır. Bu çalışma, personel seçimi zorluklarına Entropy-RAPS modelinin ilk kez uygulanması olarak literatüre değerli bir katkı olarak görülmektedir.

Anahtar Kelimeler: *Personel seçimi, konaklama sektörü, ÇKKV*
JEL Kodları*: C40, D81, C01*

Alan: *İşletme*
Türü: *Araştırma*

1. INTRODUCTION

In today's world, the key factors that determine the success of an organization include the abilities, knowledge, competencies, and motivation of its employees (Karabasevic, Zavadskas, Stanujkic, Popovic, & Brzakovic, 2018). Well-educated and qualified employees have become very important in meeting changing customer expectations and demands, especially in the hospitality industry where competition is high (Chung & D'Annunzio-Green, 2018). Since employees in the hospitality industry are in close contact with customers, their courtesy, helpfulness, and personal qualities determine customer satisfaction (Erdem, 2004). Employees, who are an important factor in providing quality service in the labor-intensive hospitality industry, are also critical in terms of customers' perception of service quality (Nickson, Warhurst, & Dutton, 2005). Recruiting, retaining, and managing employees who will help increase competitiveness is therefore very important for the success of the hospitality and tourism (Nadiri & Tanova, 2010). In this sense, the process of selecting personnel is related to choosing the optimal candidate possessing the necessary qualifications for a particular job (Dursun & Karsak, 2010). Effective personnel selection thus means raising the criteria for other HR functions within organizations, such as wage management, performance evaluation, training, and career planning (Yalçın & Pehlivan, 2019).

The aim of the selection procedure is to pinpoint the most fitting applicant for the relevant position, and various criteria are used to evaluate candidates in this process (Costen, 2012). Candidates' personal and professional skills are one of the criteria considered in the process of hiring and choosing candidates (Dominique-Ferreira, Rodrigues, & Braga, 2022). In this sense, communication is considered one of the most prominent management skills required to interact with customers and employees (Mistry, Hight, Okumus, & Terrah, 2022). Self-confidence, which is among the personal skills (Tsui, 1998), is a pivotal factor in the recruitment process and selection process, as a matter of fact, self-confidence enables employees to perform their jobs professionally (Tsai, 2019). On the other hand, software such as Electra, Protell, Asyasoft, Sedna and Athena are generally used to carry out operational processes in hotels (Napierała, Bahar, Le´sniewska-Napierała, & Topsakal, 2020). Employees should therefore have computer skills and thus educational background to use such software (Peng, 2017). Another criterion in the personnel selection process is work experience and expertise (Chien & Chen, 2008). According to Archer (2010), work experience is very important for the employability of individuals in the hospitality industry. In this process, positive or negative reference letters about the employee also affect the employer's selection decision (Nicklin & Roch, 2009). Finally, teamwork is a significant factor that requires interaction between employees and contributes to their performance, notably in the hospitality (Jawabreh, Mahmoud, & Hamasha, 2020). For this reason, suitability for teamwork within the hospitality sector is considered among the personnel selection criteria (Tews, Stafford, & Tracey, 2011).

Personnel selection is, on the other hand, a process that requires consideration of numerous quantitative and qualitative criteria, and due to this characteristic. It is frequently conceptualized as a problem within the domain of "Multi-Criteria Decision-Making" (MCDM) (Li, He, & Wang, 2022). MCDM refers to the process of ranking alternatives among a set of available options, each with varying levels of importance and based on certain predefined criteria (Stanujkić, Đorđević, & Đorđević, 2013). This study delved into the personnel selection problem within a five-star hotel operating in Alanya, employing MCDM methods. MCDM methods previously designed for personnel selection, primarily relying on expert preferences as input for deriving solutions, can lead to deviations arising from human subjectivity (Li et al., 2022). Therefore, objective methods such as Entropy-RAPS have been preferred in this study. These methods have been chosen for their strong mathematical foundations, aptitude for real-world problems, simplicity of implementation. The originality and benefits of this research can be described as follows: i) The issue of personnel selection in the hospitality sector is addressed for the first time with the Entropy-RAPS model. ii) Objective methods were used to ensure a sound evaluation, free from decision-makers' subjective judgments. iii) A sensitivity analysis was performed to test the model's robustness, and a comparative analysis was conducted with different weighting techniques. iv) Personnel selection in hospitality establishments is a highly significant issue, and the findings of this research are thought to offer valuable contributions to both the existing literature and practitioners in the field shedding light on future research.

2. RELATED WORK

In the relevant literature, one may encounter many research that address the personnel selection process in different sectors. In this sense, the issue of personnel selection has been addressed using MCDM methods in many different sectors such as logistics (Ayçin, 2020), retail (Karakul and Akpınar, 2022), automotive (Ulutaş, Özkan and Tağraf, 2018), furniture (Yumuşak, Sarımehmet, and Eren, 2023), cyber security (Yumuşak and Eren, 2022), production (Aykan and Çataltepe, 2022), service (Karakış, 2022), maritime (Elmas, 2022), automotive (Koyuncu and Özkan, 2014), aviation (Dugger, Halverson, McCrory, and Claudio, 2022), health (Khalil, Modibbo, Raina, and Ali, 2023), education (Paraskevas, Zagoris, and Chatzichristofis, 2022; Gottwald et al., 2024; Paraskevas & Madas, 2024), agriculture (Nguyen, 2022), and textile (Ozgormus, Senocak, & Goren, 2021).

In the field of hospitality and tourism, studies using MCDM methods have mostly focused on issues such as supplier selection (Gündüz and Güler, 2015; Angela & Angelina, 2021), hotel selection (Nie, Tian, Wang, and Chi, 2020; Ergül, Uluçay, and Yavuz, 2021), service quality measurement (Korucuk, Akyurt, and Turpcu, 2019; Hou, He, Liang, Li, Huang, and Wang, 2023), establishment location selection (Ar, Birdoğan, & Özdemir, 2014). While the studies that address personnel selection in the tourism sector using MCDM methods are relatively scarce, they are encapsulated in Table 1.

Table 1: Sample Research on the Subject

Author(s)	**Scope**	**Criteria**	**Method**	**Result**
Chang (2015)	Personnel selection	Interpersonal skill Experience, Negotiation, Order, Cognitive ability, Environment, Company, Emotion, Stress, Attitude, Response	fuzzy Delphi method, ANP, TOPSIS	Emotion is the most prominent criterion and the A2 candidate ranked first.
Urosevic, Karabasevic, Stanujkic, & Maksimovic (2017)	Personnel selection	"Leadership skills, communication skills, decision making, flexibility, negotiation skills, consistency, analytical skills"	SWARA, WASPAS	Communication skills is the most prominent criterion and the A2 candidate ranked first.
Akyurt (2021)	Prioritization of personnel selection criteria	"Physical appearance, responsibility, education, foreign language knowledge, experience and discipline, commitment to the organization"	AHP	Experience is the most important criteria.
İçigen & Çetin (2017)	Personnel selection	"A total of 15 criteria under the main criteria: Work experience, education, foreign language knowledge, computer knowledge, personal characteristics, impression in the interview."	AHP-TOPSIS	Impression during the interview is the prominent criterion.
Şimşek, Catır, & Ömürbek (2014)	Personnel selection	"External criteria, internal criteria, professional competence and responsibility"	Fuzzy AHP	The most effective criterion is professional competence.

Akyurt (2019)	Prioritization of hotel personnel selection criteria in Giresun	Foreign Language, Physical Characteristics, Experience, Teamwork, Responsibility, Organizational Commitment, Education
Solunoğlu (2022)	Choosing a Hot Air Balloon Pilot in Cappadocia Region	Foreign Language Knowledge, Sector Experience, Communication Ability, Suitability for Teamwork, Stress Management Skills, Technical Competence, Reference Competence
Gürkan & Dazlak (2019)	Personnel selection in the tourism industry.	12 sub-criteria under the basic criteria of Experience/Work Experience, Education, Professional Requirements, Individual Characteristics and Appearance.

According to the information provided in Table 1, AHP and TOPSIS are among the most frequently used MCDM methods in personnel selection problems. No study utilizing the Entropy-RAPS model has been encountered in the domestic and foreign literature. Studies using the Entropy and RAPS methods are summarized in Table 2.

Table 2: Case Studies using Entropy and RAPS Methods

Author(s)	Scope	Method
Dwivedi & Sharma (2024)	Optimization of Cutting Fluids	Entropy-TOPSIS
Li, Xing, & Dung (2024)	mobile medical app service quality evaluation	Entropy, BWM, MARCOS
Punetha & Jain (2024)	Rank products using multi-attribute online ratings	Entropy-COPRAS
Chodha, Dubey, Kumar, Singh, & Kaur (2022)	Selection of industrial robot	"Entropy-TOPSIS"
Mkhalet, Aziz, & Saidi (2018)	Evaluate the automotive suppliers in Morocco	Entropy-ROV
Yadav, Singh, Meena, Lee, & Park (2023)	Ranking and selection of composite materials	Entropy-VIKOR
George & Xavier (2021)	Supplier selection	Entropy-ROV-EDAS
Vadgaonkar, Fulwala, Mahajani, & Shinde (2023)	Selection of materials	Entropy-TOPSIS-COPRAS

Banadkouki (2023)	Choosing a strategy to increase energy efficiency	Entropy- Fuzzy TOPSIS
Baidya, Dhopte, & Bhattacharjee (2023)	Natural fiber selection	Entropy-TOR
Khan, Siddiqui, Khan, Asjad, & Husain (2022)	Optimization of nanofluidic parameters	Taguchi based Entropy-ROV
Urošević et al., (2021)	"Selection of the most appropriate blasting model for the extraction of raw materials in the mining industry"	MCRAT-RAPS
Bafail, Abdulaal, & Kabli (2022)	Ranking of engineering departments	AHP-RAPS
Alamoudi & Bafail (2022)	Evaluating banks according to their performance	BWM-RAPS
Abdulaal & Bafail (2022)	"Developing the RAPS-MCRAT methods."	RAPS-MCRAT
Bui & Nguyen (2024)	Selecting spot welding robot	RAMS- RAPS- MEREC-G-MEREC-H

According to Table 2, it is evident that the Entropy-RAPS methods have been employed in solving various types of problems. However, no study utilizing this model has been found in the context of personnel selection problem.

3. PRELIMINARIES

3.1. Entropy Method

In this study, the Entropy method is utilized to objectively establish criteria weights. The procedure progresses through the subsequent steps (Wang & Lee, 2009):

Step 1: A decision matrix is generated.

Step 2: The decision matrix is normalized using Eq. (1).

$$P_{ij} = \frac{x_{ij}}{\sum_{i=1}^{m} x_{ij}} \quad (1)$$

P_{ij} displays the normalized values.

Step 3: The entropy measure for criteria is computed.

$$e_j = -k \sum_{i=1}^{n} P_{ij} In P_{ij} \; {}_{\forall_j} \quad (2)$$

$$k = \frac{1}{\ln(m)}$$

e_j and m indicates the Entropy value and number of alternative, respectively. k indicates a constant.

Step 4: The level of criteria differentiation is determined.

$$d_j = 1 - e_j, \ \forall_j \quad (3)$$

d_j reveals a disparity density within the j structure.
Step 5: The criteria weights are determined.

$$W_j = \frac{d_j}{\sum_{k=1}^{n} d_k} \quad (4)$$

W_j is the criteria weight.
$\sum w_j=1$, $0 \leq w_j \leq 1$

3.2. RAPS Method

The procedure involves a series of steps wherein the concept of perimeter resemblance is employed to formulate a ranking of alternatives (Urošević et al., 2021).

Step 1: The decision matrix is normalized.

$$r_{ij} = \frac{x_{ij}}{max_i(x_{ij})} \quad benefit \quad (5)$$

$$r_{ij} = \frac{min_i(x_{ij})}{x_{ij}} \quad cost \quad (6)$$

Step 2: The weighted decision matrix is formed.

$$u_{ij} = w_j * r_{ij} \quad (7)$$

Step 3: The optimal alternative is identified.

$$q_i = \left(\max\left(u_{ij}\right) \middle| 1 \leq j \leq n\right), \forall_i \in [1,2,\dots,m] \quad (8)$$

The optimal choice is articulated by the subsequent set.

$Q = \{q_1, q_2, \dots, q_j\}$, j=1,2,…,n

Step 4: The best option is divided into two subgroups.

$$Q = Q^{max} \cup Q^{min} \quad (9)$$

Assuming k denotes the overall count of advantageous criteria and h=n-k signifies the total count of distimulant criteria, the definition of the optimal alternative is as follows:

"$Q = \{q_1, q_2, \ldots, q_k\} \cup \{q_1, q_2, \ldots, q_h\}$" ;
"k + h =j"

Step 5: Alternatives are divided.

$$U_i = U_i^{max} \cup U_i^{min}, \qquad \forall_i \in [1,2,\ldots,m] \tag{10}$$
$$U_i = \{u_{i1}, u_{i2}, \ldots, u_{ik}\} \cup \{u_{i1}, u_{i2}, \ldots, u_{ih}\}, \qquad \forall_i \in [1,2,\ldots,m]$$

Step 6: The value of each element within the ideal alternative is computed with Eqs. (11-12).

$$Q_k = \sqrt{q_1^2 + q_2^3 + .. + q_k^2} \tag{11}$$

$$Q_h = \sqrt{q_1^2 + q_2^3 + .. + q_h^2} \tag{12}$$

Each alternative undergoes the application of the same approach.

$$U_{ik} = \sqrt{u_{i1}^2 + u_{i2}^3 + .. + u_{ik}^2} \tag{13}$$

$$U_{ih} = \sqrt{u_{i1}^2 + u_{i2}^3 + .. + u_{ih}^2} \tag{14}$$

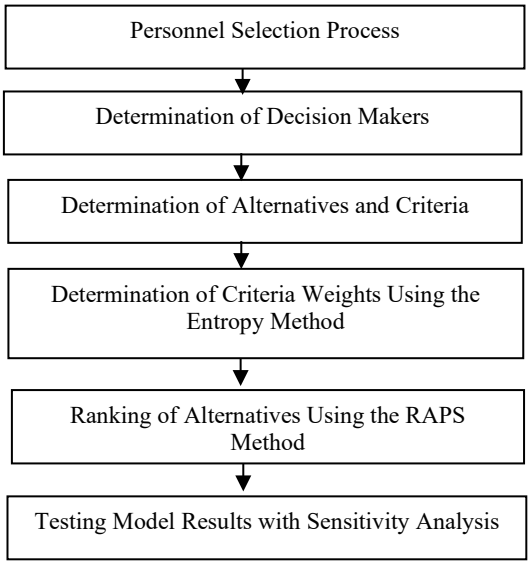

Figure 1: Research Model

4. APPLICATION

In this study, the personnel recruitment process of a 5-star hotel operating in Alanya was examined using the MPSI-RAPS model. The mentioned hotel is part of a tourism group and was selected through simple random sampling. In the study addressing the human resources manager selection problem, initially, a decision-making group was formed consisting of the general manager, assistant general manager, and the operations manager. The meeting was held on 05.12.2023. All procedures in the study abided by the ethical guidelines of both the research committee at the institutional and national levels, in compliance with the principles delineated in the Declaration of Helsinki (1964). The research was approved by Alanya University Social Sciences and Humanities Research Ethics Committee (Date: 30.11.2023/Issue: 17). Subsequently, in the criteria determination stage, commonly used criteria from the literature were presented to the decision-makers, and they were inquired to select the criteria to be considered in the recruitment process. In this regard, the criteria selected by the decision-makers to be used within the study's framework include:

C_1: Work experience and expertise
C_2: Employment stability and tenure
C_3: Educational background
C_4: Communication skill
C_5: Computer skills
C_6: Suitability for teamwork
C_7: Letter of reference
C_8: Self-confidence

In 2023, 30 people applied for the human resources manager position. The applications were made in December, January, and February. 24 candidates were eliminated owing to factors like negative references, lack of experience, inadequate presentation, and a lack of effective communication skills. The assessment encompassed six candidates (A1-A6). The decision matrix created within this scope is depicted in Table 3. All criteria are stimulants.

Table 3: Decision Matrix

	"C_1"	"C_2"	"C_3"	"C_4"	"C_5"	"C_6"	"C_7"	"C_8"
"A_1"	10	9	7	9	10	8	8	8
"A_2"	7	7	8	8	9	8	7	8
"A_3"	9	6	7	7	8	7	6	7
"A_4"	5	5	8	7	7	5	5	8
"A_5"	6	6	4	6	6	4	7	5
"A_6"	7	5	5	6	4	5	5	6

4.1. Prioritization of Criteria with the Entropy Method

To ascertain the importance levels of the criteria utilizing the Entropy method, the decision matrix was first normalized with Eq. (1) (Table 4). Subsequently, the Entropy measure for each criterion and the degree of differentiation were calculated using Eqs. (2) and (3) (Table 5). Finally, Eq. (4) was employed to ascertain the weights, and the findings are displayed in Table 6.

Table 4: Normalized Decision Matrix

	"C_1"	"C_2"	"C_3"	"C_4"	"C_5"	"C_6"	"C_7"	"C_8"
"A_1"	0.227	0.237	0.179	0.209	0.227	0.216	0.211	0.190
"A_2"	0.159	0.184	0.205	0.186	0.205	0.216	0.184	0.190
"A_3"	0.205	0.158	0.179	0.163	0.182	0.189	0.158	0.167
"A_4"	0.114	0.132	0.205	0.163	0.159	0.135	0.132	0.190
"A_5"	0.136	0.158	0.103	0.140	0.136	0.108	0.184	0.119
"A_6"	0.159	0.132	0.128	0.140	0.091	0.135	0.132	0.143

Table 5: Entropy Measure and Level of Criteria Differentiation

	"C_1"	"C_2"	"C_3"	"C_4"	"C_5"	"C_6"	"C_7"	"C_8"
e_j	0.9851	0.9875	0.9842	0.9939	0.9786	0.9816	0.9915	0.9921
d_j	0.0149	0.0125	0.0158	0.0061	0.0214	0.0184	0.0085	0.0079

Table 6: Criterion Weights

	"C_1"	"C_2"	"C_3"	"C_4"	"C_5"	"C_6"	"C_7"	"C_8"
w_j	0.1410	0.1183	0.1498	0.0576	0.2025	0.1747	0.0809	0.0752

Based on the results outlined in Table 6, the criterion with the highest importance level is K5 (Computer skills), while K4 (Communication skills) has the lowest importance level.

4.2. Application of the RAPS Method

To ascertain the performance scores of alternatives using the RAPS method, the standardization process is initially conducted based on the direction of the criteria.

Since all the criteria considered in study are benefit-oriented, the criteria were normalized using Eq. 5 (Table 7). After, the weighted decision matrix was created using the Eq. (6) (Table 8).

Table 7: Normalized Decision Matrix

	"C_1"	"C_2"	"C_3"	"C_4"	"C_5"	"C_6"	"C_7"	"C_8"
"A_1"	1	1	0.875	1	1	1	1	1
"A_2"	0.700	0.778	1	0.889	0.900	1	0.875	1
"A_3"	0.900	0.667	0.875	0.778	0.800	0.875	0.750	0.875
"A_4"	0.500	0.556	1	0.778	0.700	0.625	0.625	1.000
"A_5"	0.600	0.667	0.500	0.667	0.600	0.500	0.875	0.625
"A_6"	0.700	0.556	0.625	0.667	0.400	0.625	0.625	0.750

Table 8: Weighted Decision Matrix

	"C_1"	"C_2"	"C_3"	"C_4"	"C_5"	"C_6"	"C_7"	"C_8"
"A_1"	0.141	0.118	0.131	0.058	0.203	0.175	0.081	0.075
"A_2"	0.099	0.092	0.150	0.051	0.182	0.175	0.071	0.075
"A_3"	0.127	0.079	0.131	0.045	0.162	0.153	0.061	0.066
"A_4"	0.071	0.066	0.150	0.045	0.142	0.109	0.051	0.075
"A_5"	0.085	0.079	0.075	0.038	0.122	0.087	0.071	0.047
"A_6"	0.099	0.066	0.094	0.038	0.081	0.109	0.051	0.056

During the third phase, the optimal alternative was identified and presented in Table 9. Calculations are performed to ascertain the optimum alternative and decompose the alternatives using Eqs. (8) and (9) (Table 10-11). The value calculated for each element of the optimal alternative is determined by using Eqs. (11-14). The alternatives are ranked, and the outcomes are presented in Table 12.

Table 9: Optimal Alternative

	"C_1"	"C_2"	"C_3"	"C_4"	"C_5"	"C_6"	"C_7"	"C_8"
	+	+	+	+	+	+	+	+
	q_1	q_2	q_3	q_4	q_5	q_6	q_7	q_8
Q	0.1410	0.1183	0.1498	0.0576	0.2025	0.1747	0.0809	0.0752

Table 10: Decomposition of the Optimum Alternative

	"C_1"	"C_2"	"C_3"	"C_4"	"C_5"	"C_6"	"C_7"	"C_8"
	+	+	+	+	+	+	+	+
	"q_1"	"q_2"	"q_3"	"q_4"	"q_5"	"q_6"	"q_7"	"q_8"
Q^{max}	0.1410	0.1183	0.1498	0.0576	0.2025	0.1747	0.0809	0.0752
Q^{min}	-	-	-	-	-	-	-	-

Table 11: Decomposition of Alternatives

	"C_1"	"C_2"	"C_3"	"C_4"	"C_5"	"C_6"	"C_7"	"C_8"
	+	+	+	+	+	+	+	+
	"u_1"	"u_2"	"u_3"	"u_4"	"u_5"	"u_6"	"u_7"	"u_8"
A1 U^{max}	0.1410	0.1183	0.1311	0.0576	0.2025	0.1747	0.0809	0.0752
A1 U^{min}	-	-	-	-	-	-	-	-
A2 U^{max}	0.0987	0.0920	0.1498	0.0512	0.1823	0.1747	0.0708	0.0752
A2 U^{min}	-	-	-	-	-	-	-	-
A3 U^{max}	0.1269	0.0788	0.1311	0.0448	0.1620	0.1528	0.0607	0.0658
A3 U^{min}	-	-	-	-	-	-	-	-
A4 U^{max}	0.0705	0.0657	0.1498	0.0448	0.1418	0.1092	0.0506	0.0752
A4 U^{min}	-	-	-	-	-	-	-	-
A5 U^{max}	0.0846	0.0788	0.0749	0.0384	0.1215	0.0873	0.0708	0.0470
A5 U^{min}	-	-	-	-	-	-	-	-
A6 U^{max}	0.0987	0.0657	0.0936	0.0384	0.0810	0.1092	0.0506	0.0564
A6 U^{min}	-	-	-	-	-	-	-	-

Table 12: Perimeter Similarity of Options

	+	-	**Perimeter**	**Perimeter Similarity**	**Rank**
Q	Q_k	Q_h	$P = Q_k + Q_h + \sqrt{Q_k^2 + Q_h^2}$	$PS_i = \frac{P_i}{P}$	
	0.379	0	0.757		
	U_{ik}	U_{ih}	$P_i = U_{ik} + U_{ih} + \sqrt{U_{ik}^2 + U_{ih}^2}$		
"A_1"	0.3716	0	0.7433	0.9815	1
"A_2"	0.3430	0	0.6861	0.9060	2
"A_3"	0.3149	0	0.6298	0.8316	3
"A_4"	0.2720	0	0.5440	0.7183	4
"A_5"	0.2238	0	0.4476	0.5910	5
"A_6"	0.2203	0	0.4406	0.5818	6

According to the results obtained with the Entropy-RAPS model and listed in Table 12, the candidate best suited for the position for the human resources manager position is candidate A1. The lowest score is obtained by candidate A6.

4.3. Sensitivity Analysis

This section encompasses a sensitivity analysis carried out to evaluate the model's robustness and the impact of different criterion weights on the results was tested. Accordingly, criterion weights were recalculated using the Equal Weighting (EW), MPSI, and LOPCOW techniques, and a comparison was made with the Entropy-RAPS model. In the study, the appropriateness of the mentioned weighting techniques for real-world problems and their simplicity in calculation procedures have been effective factors in their selection.

Table 13: Comparative Results

	Entropy-RAPS		**EW-RAPS**		**MPSI-RAPS**		**LOPCOW-RAPS**	
	"Value"	"Rank"	"Value"	"Rank"	"Value"	"Rank"	"Value"	"Rank"
A_1	0.9815	1	0.9852	1	0.9779	1	0.9766	1
A_2	0.9060	2	0.8987	2	0.9168	2	0.9236	2
A_3	0.8316	3	0.8184	3	0.8367	3	0.8353	3
A_4	0.7183	4	0.7445	4	0.7410	4	0.7997	4
A_5	0.5910	5	0.6389	5	0.5903	6	0.6258	5
A_6	0.5818	6	0.6262	6	0.5971	5	0.6194	6

According to the results in Table 13, the rankings obtained with the MPSI-RAPS model are different from the rankings obtained with the other models, and they have remained unchanged. Different criterion weights applied to the same dataset can alter the MCDM rankings. The influence of criterion weights on MCDM rankings has been highlighted in many studies (Zavadskas & Podvezko, 2016; Paradowski, Shekhovtsov, Bączkiewicz, Kizielewicz, & Sałabun, 2021; Bączkiewicz & Wątróbski, 2022). In the results obtained with the MPSI-RAPS model, only the positions of A_5 and A_6 have changed. In this regard, it can be said that the model used is minimally sensitive to criterion weights and is robust.

5. CONCLUSIONS

The human touch is an integral part of the hospitality industry. Therefore, the personnel selection process and placing the right personnel in the proper jobs is likely to provide many positive work outcomes such as efficiency, effectiveness, performance and competitive advantage in hospitality. In this research, the Human Resources Manager selection problem of a five-star hotel operating in Alanya was examined using MCDM methods. The criteria were determined as Work Experience and Expertise (C_1), Employment Stability and Tenure (C_2), Educational Background (C_3), Communication skill (C_4), Computer skills (C_5), Suitability for Teamwork (C_6), Letter of Reference (C_7), Self-confidence (C_8) by three experts: the Human Resources Manager, the Human Resources Supervisor, and the Operations Manager. In this study, where six candidates were evaluated, weights for criteria were established using the Entropy technique, and the RAPS method was employed for alternative selection.

Based on the outcomes derived from the Entropy method, the criterion with the highest importance level is C_5 (Computer skills), while C_4 (Communication skills) has the lowest importance level. According to the results of the Entropy-RAPS model, candidate A1 was determined as the candidate with the highest score. Considering the importance of the front office department in hospitality industry, it can be said that the identified candidate meets the required criteria at a high level. In light of the outcomes from the sensitivity analysis applied to evaluate the model's resilience, the rankings obtained with different criterion weights are generally homogeneous. Except for the rankings obtained with the MPSI technique, the rankings obtained with other techniques (Entropy, EW, LOPCOW) remained the same and did not differ. This shows that the model is suitable for employee recruitment in the tourism industry and is not sensitive to different criterion weights.

The procedure used in this paper considers the Entropy-RAPS model. The Entropy method is used to calculate the objective weights of criteria and appears reliable due to not including subjective judgments of decision-makers. The RAPS method, on the other hand, is a new method introduced to address the shortcomings of some MCDM methods (such as TOPSIS, VIKOR) and uses the concept of perimeter similarity.

In future research, the model in this research can be utilized in personnel selection for different hotel establishments, and comparisons can be made using an integration of subjective and objective methods. Moreover, having a greater number of specialists responsible for evaluation in the recruitment process will ensure more accurate results. Finally, the Entropy-RAPS model can be used in solving various MCDM problems such as material selection, project selection, supplier selection, etc.

6. CONFLICT OF INTEREST STATEMENT

There is no conflict of interest between the authors.

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8. AUTHOR CONTRIBUTIONS

AE: Idea
AE, NE: Design
NE: Supervision
NE: Collecting and processing resources
NE: Analysis and interpretation
AE: Literature review
AE: Writer
AE: Critical Review

9. ETHICS COMMITTEE STATEMENT AND INTELLECTUAL PROPERTY COPYRIGHTS

The principles of the ethics committee were followed in the study and necessary permissions were obtained in accordance with the principles of intellectual property and copyright.

10. REFERENCE

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