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Original Article

Selection of Teaching Faculty in Pharmacy/Engineering Institutes by Using an Analytical Hierarchy Process (AHP): A Procedure Proposed

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ABSTRACT

Background: The process for choosing the right talent to further the institution's objectives is known as faculty selection. In a pharmacy or engineering college, choosing teaching personnel is quite important. The best-qualified candidates for teaching faculty members in pharmacy/engineering institutions are chosen in this study using an Analytical Hierarchy Process (AHP). **Materials and Methods:** AHP analysis is done based on six primary criteria as Ph.D./M. Tech (P/M), Teaching Experience (TE), Industry Experience (IE), Research Publications (RP), Paper Reviewed/Board Member (PR/BM) and Technical Courses (TC) in the first round and three secondary criteria as an Oral Presentation (OP), Student Feedback (SF) and Interview Performance (IP) in the second round. **Results:** First, create a weight matrix and a normalized weight matrix using the first round's six basic criteria (P/M, TE, IE, RP, PR/BM, and TC) and the second round's three subsidiary criteria (OP, SF, and IP). The decision makers' conclusions are consistent, as shown by the Consistency ratio (CR), which is less than 0.10. In both the first round and the second round, applicant 3 gets the highest weighted score when compared to applicant 6. Thus, candidate 3 is chosen as the most suitable teaching faculty member in the final AHP judgment. **Conclusion:** In comparison to the initial criteria, the following criteria are more significant when choosing teaching faculty members. Due to the selection of faculty members of colleges and universities in this article, the subsequent round has a larger weighting than the first.

Keywords: Analytical hierarchy process, Teaching experience, Industry experience, Weight matrix, Random consistency index.

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INTRODUCTION

Staffing management plays a significant role in hiring new members who have appropriate skills or talent to fulfill organizational needs. It is very difficult to select the most appropriate applicants. To choose the best job candidate in corporate America, organisations use several evaluation techniques, including interviews, ability testing, personality tests, and work experience.[1] Similar to that, choosing tenure-track faculty members is essential for academic institutions to achieve the objectives of higher education. Abuizam and Lucas describe the selection procedure for a tenure-track faculty position.[2] To do so, make a search committee for conducting the selection process. After conducting interviews, the interviewer recommends the best applicant for the tenure-track teaching faculty post to the department head, the school's dean, and/or other higher-level individuals for the next round of interviews.

MATERIALS AND METHODS

Analytical Hierarchy Process (AHP)

Thomas L. Saaty created the Analytical Hierarchy Process (AHP).[3] Almost all decision-making programs, including those in the public and private sectors of business, industry, healthcare, and education, have already used AHP.[4] The AHP is one of the Multi-Criteria Decision-Making (MCDM) methods that is gaining popularity with academics and researchers due to its simplicity of use and value in resolving complicated issues.[3,5,6] The AHP technique has also been applied to choices for hiring, promoting military personnel, and admitting students. According to research, Ford Motor created goals for enhancing customer satisfaction criteria in 1999 by employing AHP.[7] Many studies have utilized AHP in many industries and have shown it to be

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effective in selecting vendors and providers,[8] cranes for building sites,[9] and tenure track academic positions.[2] Additionally, this approach has been used to solve engineering difficulties in sectors including combined manufacturing,[10] adaptable production systems,[11] design of layouts,[12] as well as additional engineering issues.[13] In this study, an AHP-based selection process for tenure-track teaching faculty members at pharmacy/engineering institutes will be suggested.

An AHP is employed in this study to choose teaching staff for pharmacy and engineering institutes. The major goal of this study is to choose the pharmacy/engineering institutes' teaching faculty members that are the most suitable. An imaginary organization claims that X has been thought to help explain. The selection of most appropriate applicant is based on six criterias as P/M, TE, IE, RP, PR/BM and TC in this study. Table 1a illustrates the applicant's criteria.

RESULTS AND DISCUSSION

Technique and Process

This study describes the proposed procedure for the selection of most appropriate applicants in the considered hypothetical engineering institute by using AHP. The procedure has total 7 steps in two rounds. The first round has 3 steps as follows-

Step-1: A hierarchy is an arrangement of items (goal, criteria, aplicants, etc.).[8] Figure 1 illustrates the hierarchy used for selecting the most appropriate applicants for the post of teaching faculty members in an engineering institute.

Step-2: In the second step, criteria are compared by calculating their weight matrix in this study. Additionally, every single criterion is subjected to a pairwise comparison.. AHP is used to rank the importance of each objective. The alternatives are applicants. The number of comparisons are n(n-1)/2 in AHP. In this study, *n* is the number of applicants, i.e. 6, therefore the number of comparisons 6(6-1)/2=15 are needed to compute the priorities. The decision makers have suggested relative weights for various criteria, P/M, TE, IE, RP, PR/BM, and TC as well as for applicants as shown in Table 1b in this study. The scale of relative importance in quantitative analysis is as followes, 1-similarity index, 3-weak relative importance of each, 5-crucial importance, 7-definite importance, 9-absolute importance, and 2, 4, 6, 8-between the two neighbouring judgements, middle values.[3,14] The decision makers are two senior professors and one from Industry in this study. This weight matrix must be normalised in

Table 1a: Applicant's criteria.

Criteria/ Applicants	Education (Ph.D/M. Tech.) (P/M)	Teaching Experience (TE)	Industry Experience (IE)	Research Publications (RP)	Paper reviewed/ Board Member (PR/BM)	W/S, STTP, FDP etc., Organized/ Attended (Technical Courses; TC)
Applicant-1 (A1)	M. Tech.+Ph.D (From Private University)	Post M. Tech.: 10 Years Post PhD.: Nil Total: 10 Years	4 Years	IJ=4 IC=4 Total=8	6	8
Applicant-2 (A2)	M. Tech. (From Govt. College)	Post M. Tech.: 7 Years Total: 7 Years	2 Years	IJ=2 IC=2 Total=4	2	4
Applicant-3 (A3)	M. Tech.+Ph.D (From State Technical University)	Post M. Tech.: 13 Years Post PhD.: 5 Years Total: 18 Years	3 Years	IJ=18 IC=22 Total=40	36	38
Applicant-4 (A4)	M. Tech. (Private College)	Post M. Tech.: Nil Total: Nil	1 Years	IJ=2 IC=Nil Total=2	Nil	2
Applicant-5 (A5)	M. Tech. (From NIT)	Post M. Tech.: Nil Total: Nil	Nil	IJ=2 IC=4 Total=6	7	5
Applicant-6 (A6)	M. Tech.+Ph.D (From NIT)	Post M. Tech.: 3 Years Post PhD.: 2 Years Total: 5 Years	Nil	IJ=6 IC=12 Total=18	4	14

order to generate weights by averaging six values for each of the six criteria. Table 2a, 2b, 2c, 2d, 2e, 2f, and 2g illustrates the weight matrix and normalized weight matrix for given 6 primary criteria in the first round.

Additionally, look at the consistency of decision-makers conclusions. First of all, calculate the value of λ_{max} by adding the products of the SUM and the weight of each criterion. The deviation can be measured by this Consistency Index (CI). The formula used for this calculation is: $CI=(\lambda_{max} -n)/(n-1)$. The Random Consistency Index (RCI) for appropriate comparison is as N- 2, 3, 4, 5, 6, 7, 8, 9, 10 and RCI- 0, 0.58, 0.90, 1.12, 1.24, 1.32, 1.41, 1.45, 1.51 respectively.[6]

Now the Consistency Ratio (CR) is then calculated as CR=CI/RCI. The value of CR is deciding whether the judgments are consistent or not. The consistency of the assessments is excellent if the CR value is less than 0.10, and it indicates inconsistent judgments if the value is larger than 0.10. In this study, CR=0.05 for criteria, which is less than 0.10, Therefore judgments are consistent. Also, calculate the value of CR of other normalized weight matrices to check the consistency. To create weight matrices and normalized weight matrices of applications for each criterion, decision-makers utilize a comparable scale. The weight matrix and normalized weight matrix of each applicant for each primary criterion as P/M, TE, IE, RP, PR/BM, and TC are shown in Table 3a.

Now again check the consistency of judgements for all the applicants by calculating the value of CR. The value of CR of all the applicants for P/M, TE, IE, RP, PR/BM and TC are 0.048, 0.059, 0.052, 0.025, 0.030 and 0.018 respectively. Due to their lower than 0.10 levels, these values exhibit the highest level of consistency.

Table 1b: Weight for criteria and applicants under P/M, TE, IE, RP, PR/BM, and TC.

Weight for Criteria	P/M	P/M	P/M	P/M	P/M	TE	TE	TE	TE	IE	IE	IE	RP	RP	PR/BM
	5	7	3	6	8	4	3	7	5	1	3	4	7	5	1
	TE	IE	RP	PR/BM	TC	IE	RP	PR/BM	TC	RP	PR/BM	TC	PR/BM	TC	TC
	1	1	1	1	1	1	1	1	1	5	1	1	1	1	3
Weight for P/M	A1	A1	A1	A1	A1	A2	A2	A2	A2	A3	A3	A3	A4	A4	A5
	3	1	7	4	1	1	5	1	1	7	5	1	1	1	1
	A2	A3	A4	A5	A6	A3	A4	A5	A6	A4	A5	A6	A5	A6	A6
	1	5	1	1	5	7	1	3	6	1	1	3	4	7	5
Weight for TE	A1	A1	A1	A1	A1	A2	A2	A2	A2	A3	A3	A3	A4	A4	A5
	3	1	5	5	4	1	5	5	1	8	7	5	1	1	1
	A2	A3	A4	A5	A6	A3	A4	A5	A6	A4	A5	A6	A5	A6	A6
	1	5	1	1	1	7	1	1	2	1	1	1	1	5	5
Weight for IE	A1	A1	A1	A1	A1	A2	A2	A2	A2	A3	A3	A3	A4	A4	A5
	3	2	5	7	7	1	2	3	3	3	5	5	3	3	1
	A2	A3	A4	A5	A6	A3	A4	A5	A6	A4	A5	A6	A5	A6	A6
	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1
Weight for RP	A1	A1	A1	A1	A1	A2	A2	A2	A2	A3	A3	A3	A4	A4	A5
	3	1	5	2	1	1	3	1	1	7	6	5	1	1	1
	A2	A3	A4	A5	A6	A3	A4	A5	A6	A4	A5	A6	A5	A6	A6
	1	7	1	1	4	7	1	3	5	1	1	1	3	7	6
Weight for PR/BM	A1	A1	A1	A1	A1	A2	A2	A2	A2	A3	A3	A3	A4	A4	A5
	5	1	5	1	2	1	3	1	1	7	6	5	1	1	3
	A2	A3	A4	A5	A6	A3	A4	A5	A6	A4	A5	A6	A5	A6	16
	1	7	1	1	1	7	1	5	3	1	1	1	7	5	1
Weight for TC	A1	A1	A1	A1	A1	A2	A2	A2	A2	A3	A3	A3	A4	A4	A5
	3	1	5	2	1	1	2	1	1	8	7	5	1	1	1
	A2	A3	A4	A5	A6	A3	A4	A5	A6	A4	A5	A6	A5	A6	16
	1	5	1	1	3	7	1	1	5	1	1	1	3	7	3

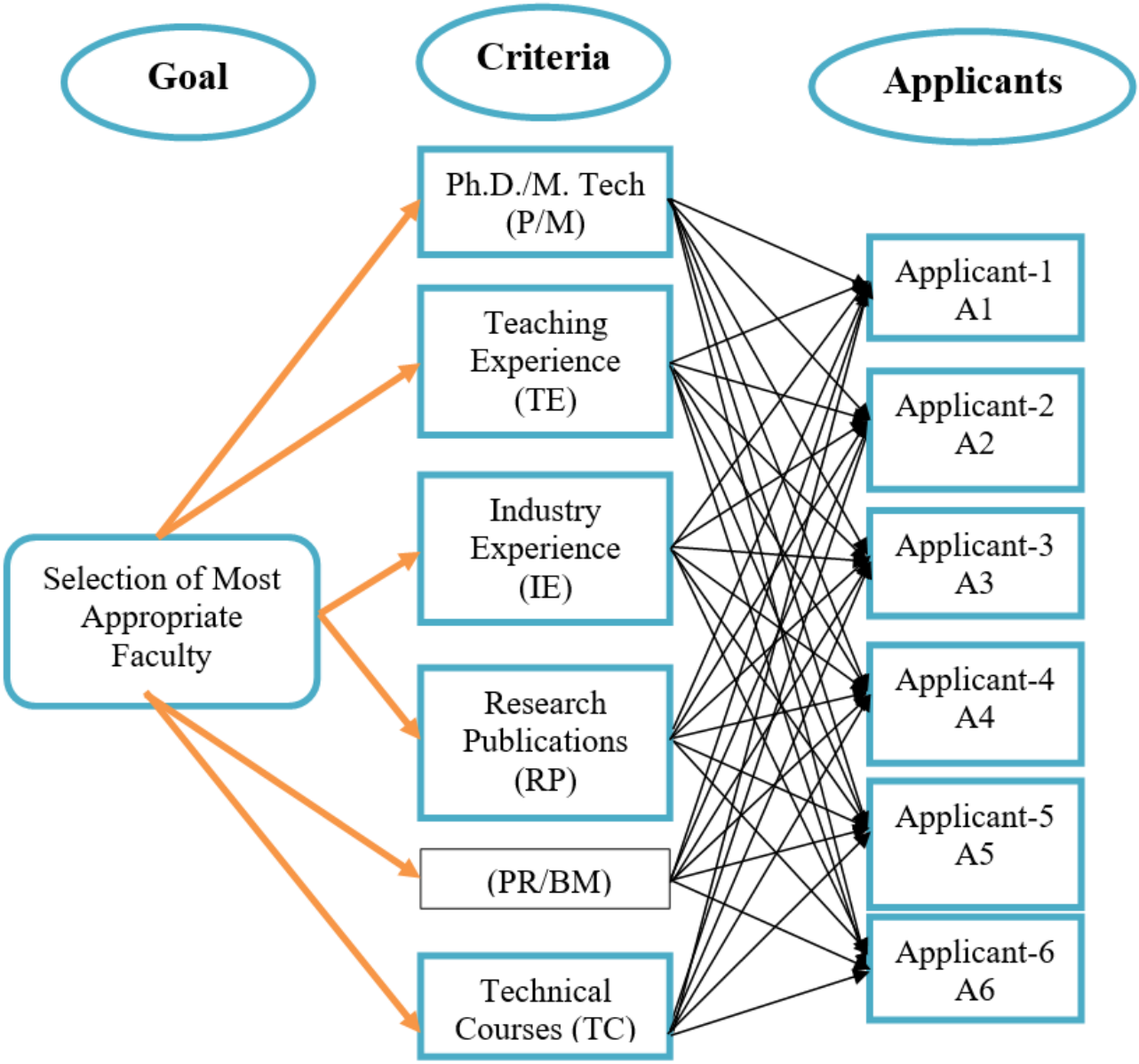

Figure 1: Hierarchy used for selecting most appropriate applicants.

Table 2a: Matrix weights and normalised matrix weights for criterion.

Weight Matrix							Normalized Weight Matrix						
Criteria	**P/M**	**TE**	**IE**	**RP**	**PR/BM**	**TC**	**P/M**	**TE**	**IE**	**RP**	**PR/BM**	**TC**	**Weight**
P/M	1	5	7	3	6	8	0.50	0.72	0.51	0.35	0.24	0.33	0.44
TE	1/5	1	4	3	7	5	0.10	0.14	0.29	0.35	0.28	0.20	0.23
IE	1/7	¼	1	1/5	3	4	0.07	0.03	0.07	0.11	0.12	0.16	0.09
RP	1/3	1/3	5	1	7	5	0.16	0.04	0.07	0.11	0.28	0.20	0.14
PR/BM	1/6	1/7	1/3	1/7	1	1/3	0.08	0.02	0.02	0.01	0.04	0.04	0.03
TC	1/8	1/5	1/4	1/5	3	1	0.06	0.02	0.01	0.02	0.04	0.04	0.03
SUM	1.96	6.92	13.58	8.34	25	24	λ_{max}=6.314, CI=(λ_{max}-n)/(n-1)=0.063, CR=CI/RCI=0.05						

Table 2b: Weight matrix and normalized weight matrix for applicants.

For Ph.D/M. Tech. (P/M)													
Weight Matrix							Normalized Weight Matrix						
Criteria	A1	A2	A3	A4	A5	A6	A1	A2	A3	A4	A5	A6	Weight
A1	1	3	1/5	7	4	1/5	0.08	0.14	0.04	0.22	0.25	0.09	0.13
A2	1/3	1	1/7	5	1/3	1/6	0.02	0.04	0.03	0.16	0.02	0.08	0.05
A3	5	7	1	7	5	1/3	0.42	0.34	0.21	0.22	0.32	0.16	0.27
A4	1/7	1/5	1/7	1	1/4	1/7	0.01	0.01	0.03	0.03	0.01	0.07	0.02
A5	¼	3	1/5	4	1	1/5	0.02	0.14	0.04	0.12	0.06	0.09	0.07
A6	5	6	3	7	5	1	0.42	0.29	0.64	0.22	0.32	0.49	0.39
SUM	11.72	20.20	4.68	31	15.58	2.04	λ_{max}=6.303, CI=(λ_{max}-n)/(n-1)=0.060, CR=CI/RCI=0.048						

Table 2c: Weight matrix and normalized weight matrix for applicants.

For Teaching Experience (TE)													
Weight Matrix							Normalized Weight Matrix						
Criteria	A1	A2	A3	A4	A5	A6	A1	A2	A3	A4	A5	A6	Weight
A1	1	3	1/5	5	5	4	0.14	0.22	0.1	0.02	0.02	0.36	0.20
A2	1/3	1	1/7	5	5	½	0.04	0.07	0.07	0.02	0.02	0.04	0.10
A3	5	7	1	8	7	5	0.71	0.52	0.55	0.32	0.29	0.45	0.47
A4	1/5	1/5	1/8	1	1	1/5	0.02	0.01	0.06	0.04	0.04	0.01	0.03
A5	1/5	1/5	1/7	1	1	1/5	0.02	0.01	0.07	0.04	0.04	0.01	0.03
A6	1/4	2	1/5	5	5	1	0.03	0.14	0.11	0.20	0.20	0.09	0.12
SUM	6.98	13.40	1.81	25	24	10.90	λ_{max}=6.365, CI=(λ_{max}-n)/(n-1)=0.073, CR=CI/RCI=0.059						

Table 2d: Weight matrix and normalized weight matrix for applicants.

For Industry Experience (IE)													
Weight Matrix							Normalized Weight Matrix						
Criteria	A1	A2	A3	A4	A5	A6	A1	A2	A3	A4	A5	A6	Weight
A1	1	3	2	5	7	7	0.43	0.36	0.49	0.42	0.35	0.35	0.40
A2	1/3	1	1/3	2	3	3	0.14	0.12	0.08	0.17	0.15	0.15	0.13
A3	1/2	3	1	3	5	5	0.21	0.36	0.24	0.25	0.25	0.25	0.26
A4	1/5	½	1/3	1	3	3	0.09	0.06	0.08	0.09	0.15	0.15	0.11
A5	1/7	1/3	1/5	1/3	1	1	0.06	0.04	0.05	0.03	0.05	0.05	0.05
A6	1/7	1/3	1/5	1/3	1	1	0.06	0.04	0.05	0.03	0.05	0.05	0.05
SUM	2.31	8.16	4.06	11.66	20	20	λ_{max}=6.323, CI=(λ_{max}-n)/(n-1)=0.065, CR=CI/RCI=0.052						

Step-3: This phase involves combining the decision makers' evaluations of each candidate with their general priorities. After calculating the weights of each applicant on each criterion, these weights should be combined with the weight of individuals each criterion as P/M, TE, IE, RP, PR/BM and TC as shown in Table 3a. The result shows that applicant 1 (A1), applicant 3 (A3) and applicant 6 (A6) have the highest weighted score as compared to the remaining three applicants.

Step-4: In the second round, decision maker's again check the eligibility of three qualified applicants having a higher weight score in the first round. Applicant 3 has the highest weight score, applicant 6 has the second most weight score and applicant 1 has the third highest weight score among all six applicants. Also, check the other criteria of these selected applicants. The other criteria are Oral Presentation (OP), Student Feedback (SF) and Interview Performance (IP) in the second round. These three criteria are used to finalize the most appropriate applicants in this

Table 2e: Weight matrix and normalized weight matrix for applicants.

For Research Publications (RP)													
Weight Matrix							Normalized Weight Matrix						
Criteria	A1	A2	A3	A4	A5	A6	A1	A2	A3	A4	A5	A6	Weight
A1	1	3	1/7	5	2	1/4	0.07	0.15	0.07	0.19	0.12	0.03	0.10
A2	1/3	1	1/7	3	1/3	1/5	0.02	0.05	0.07	0.11	0.02	0.02	0.04
A3	7	7	1	7	6	5	0.54	0.36	0.55	0.26	0.38	0.74	0.47
A4	1/5	1/3	1/7	1	1/3	1/7	0.01	0.01	0.07	0.03	0.02	0.02	0.02
A5	½	3	1/6	3	1	1/6	0.03	0.15	0.09	0.11	0.06	0.02	0.07
A6	4	5	1/5	7	6	1	0.30	0.25	0.11	0.26	0.38	0.14	0.24
SUM	13.03	19.33	1.79	26	15.66	6.75	λ_{max}=6.154, CI=(λ_{max}-n)/(n-1)=0.031, CR=CI/RCI=0.025						

Table 2f: Weight matrix and normalized weight matrix for applicants.

For Paper Reviewed/Board Member (PR/BM)													
Weight Matrix							Normalized Weight Matrix						
Criteria	A1	A2	A3	A4	A5	A6	A1	A2	A3	A4	A5	A6	Weight
A1	1	5	1/7	5	1	2	0.10	0.23	0.07	0.17	0.11	0.17	0.14
A2	1/5	1	1/7	3	1/5	1/3	0.02	0.04	0.07	0.10	0.02	0.02	0.04
A3	7	7	1	7	6	5	0.70	0.32	0.55	0.25	0.69	0.43	0.49
A4	1/5	1/3	1/7	1	1/7	1/5	0.01	0.01	0.07	0.03	0.01	0.01	0.02
A5	1	5	1/6	7	1	3	0.10	0.23	0.09	0.25	0.11	0.26	0.17
A6	½	3	1/5	5	1/3	1	0.05	0.14	0.11	0.17	0.03	0.08	0.09
SUM	9.90	21.33	1.79	28	8.67	11.53	λ_{max}=6.188, CI=(λ_{max}-n)/(n-1)=0.038, CR=CI/RCI=0.030						

Table 2g: Weight matrix and normalized weight matrix for applicants.

For Technical Course (TC)													
Weight Matrix							Normalized Weight Matrix						
Criteria	A1	A2	A3	A4	A5	A6	A1	A2	A3	A4	A5	A6	Weight
A1	1	3	1/5	5	2	1/3	0.09	0.17	0.11	0.19	0.14	0.04	0.12
A2	1/3	1	1/7	2	1	1/5	0.03	0.05	0.07	0.07	0.07	0.02	0.05
A3	5	7	1	8	7	5	0.49	0.39	0.55	0.30	0.48	0.71	0.48
A4	1/5	½	1/8	1	1/3	1/7	0.02	0.02	0.06	0.04	0.02	0.02	0.03
A5	½	1	1/7	3	1	1/3	0.05	0.05	0.07	0.11	0.07	0.04	0.06
A6	3	5	1/5	7	3	1	0.30	0.28	0.11	0.27	0.20	0.14	0.22
SUM	10.03	17.05	1.81	26	14.33	7.01	λ_{max}=6.107, CI=(λ_{max}-n)/(n-1)=0.022, CR=CI/RCI=0.018						

study. Figure 2 illustrates the hierarchy model used for selecting the most appropriate applicants (second round).

Again the decision makers have suggested relative weights for various criteria, OP, SF, and IP as well as for applicants as shown in Table 3b in this study. Above mentioned scale of relative importance in quantitative analysis is used to make a decision.[3,14]

Step-5: In this step, again prepare the weight matrix and normalized weight matrix for various criteria as similar as prepared in the first round. Decision makers again used the scale of relative importance in quantitative analysis to prepare a weight matrix and normalized weight matrix for each criterion as shown in Table 4a.

Also, check the consistency of the judgments (Second round) by calculating the value of CR. The value of CR is 0.017, which is less than 0.10, which means judgments are satisfactory and consistent according to Saaty 2006.[15] Verify each applicant's performance

Table 3a: Calculations for the selection of best applicant.

Criteria/ Applicant	P/M	TE	IE	RP	PR/BM	TC	×	Criteria Weight	=	Weighted Score	Applicant A1, A3 and A6 has the highest score among all applicants
A1	0.13	0.20	0.40	0.10	0.14	0.12	0.44	0.161	A2	0.05	0.10
0.13	0.04	0.04	0.05	0.23	0.065	A3	0.27	0.47	0.26	0.47	0.49
0.48	0.09	0.345	A4	0.02	0.03	0.11	0.02	0.02	0.03	0.14	0.030
A5	0.07	0.03	0.05	0.07	0.17	0.06	0.03	0.059	A6	0.39	0.12
0.05	0.24	0.09	0.22	0.03	0.247						

Table 3b: Relative weight for criteria and applicants under OP, SF, and IP.

Relative Weight for Criteria				Relative Weight for OP, SF and IP											
				OP				SF				IP			
OP	5	SF	1	A1	1	A3	5	A1	1	A3	4	A1	1	A3	7
OP	1	IP	3	A1	1	A6	3	A1	1	A6	3	A1	1	A6	4
SF	1	IP	5	A3	3	A6	1	A3	4	A6	1	A3	5	A6	1

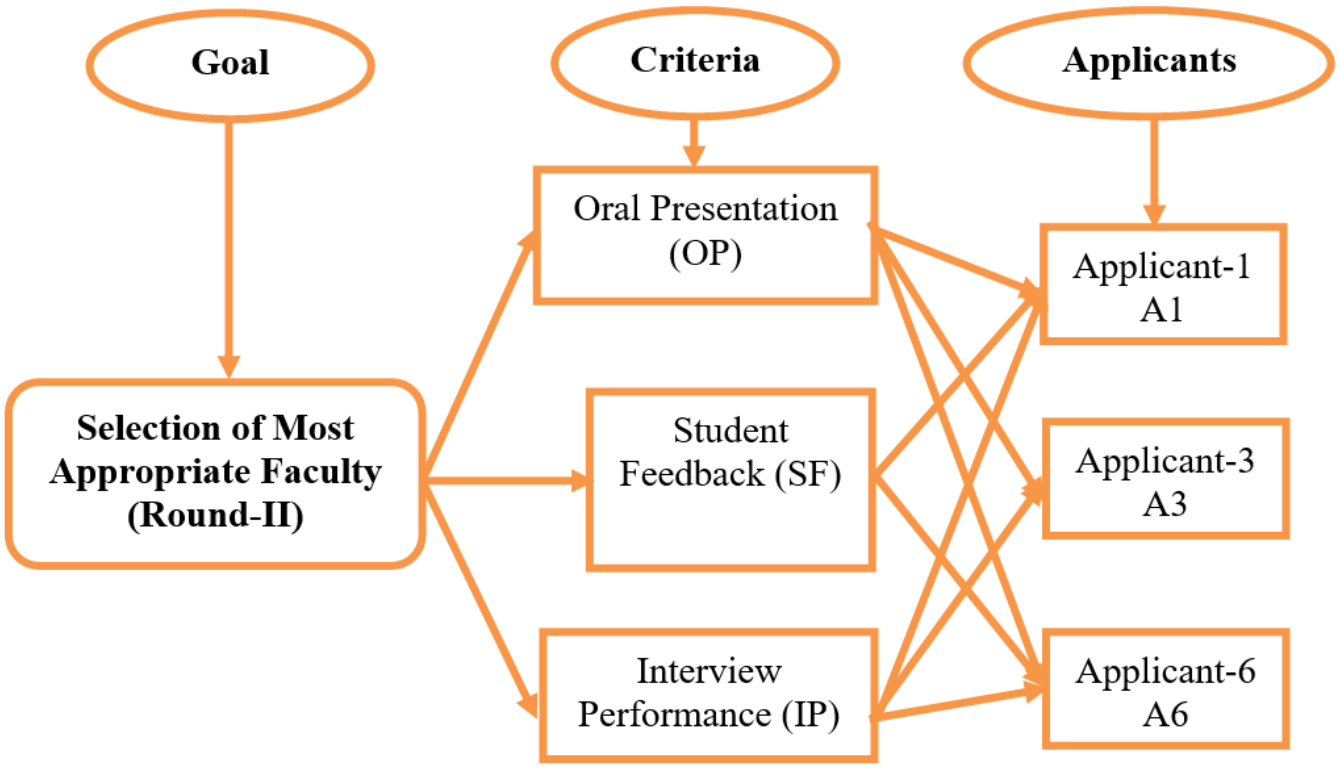

Figure 2: Hierarchy used for selecting the most appropriate applicants (second round).

Table 4a: Weight matrix and normalized weight matrix for criteria.

Criteria	OP	SF	IP	OP	SF	IP	Weight
OP	1	5	1/3	0.23	0.45	0.21	0.29
SF	1/5	1	1/5	0.04	0.09	0.13	0.08
IP	3	5	1	0.69	0.45	0.65	0.60
SUM	4.2	11	1.53	λ_{max}=3.02, CI=(λ_{max}-n)/(n-1)=0.01, CR=CI/RCI=0.017			

Table 4b: Matrix of weights and normalised matrix of weights.

For Oral Presentation (OP)							
Applicant	A1	A3	A6	A1	A3	A6	Weight
A1	1	1/5	1/3	0.11	0.13	0.07	0.11
A3	5	1	3	0.55	0.65	0.69	0.63
A6	3	1/3	1	0.33	0.22	0.23	0.26
SUM	9	1.53	4.33	λ_{max}=3.08, CI=(λ_{max}-n)/(n-1)=0.04, CR=CI/RCI=0.069			
For Student Feedback (SF)							
Applicant	A1	A3	A6	A1	A3	A6	Weight
A1	1	¼	1/3	0.12	0.17	0.06	0.11
A3	4	1	4	0.50	0.67	0.72	0.63
A6	3	¼	1	0.37	0.17	0.18	0.24
SUM	8	1.5	5.33	λ_{max}=3.11, CI=(λ_{max}-n)/(n-1)=0.055, CR=CI/RCI=0.095			
For Interview Performance (IP)							
Applicant	A1	A3	A6	A1	A3	A6	Weight
A1	1	1/7	¼	0.08	0.10	0.04	0.07
A3	7	1	5	0.56	0.74	0.80	0.70
A6	4	1/5	1	0.32	0.14	0.16	0.20
SUM	12	1.34	6.25	λ_{max}=3.028, CI=(λ_{max}-n)/(n-1)=0.014, CR=CI/RCI=0.024			

Table 4c: Calculations for the selection of best applicant (second round).

Criteria/ Applicant	OP	SF	IP	×	Criteria Weight	=	Weighted Score	Applicant A3 and A6 has the highest score among all three applicants
A1	0.11	0.11	0.07	0.29	0.0827	A3	0.63	0.63
0.70	0.08	0.6531	A6	0.26	0.24	0.20	0.60	0.2146

now against each applicable criterion. To create a weight matrix and a normalized weight matrix of applicants for each criterion, decision-makers utilize the same scale. As indicated in Table 4b, each criterion's weight matrix and normalized weight matrix are listed for OP, SF, and IP.

Step-6: Again check the consistency of the judgments (Second round) for applicants by calculating the value of CR. The value of CR for all three applicants is 0.069, 0.095, and 0.024 respectively, which is less than 0.10, which means judgments are satisfactory and consistent according to Saaty 2006.[15] After assigning weights to each applicant based on each criterion, Table 4c OP, SF, and IP weights should be added to these individual weights. The result shows that Applicant 3 (A3) and Applicant 6 (A6) have the highest weighted score in this study. Applicant 3 has the highest weighted score as compared to Applicant 6 in both rounds. So AHP suggests that the decision makers will finalize a decision to select applicant 3 or applicant 6 or both if the institute requires all 6 applicants. Due to the larger weighting of the first and second rounds as previously mentioned, applicant 3 is chosen as the best suitable teaching faculty member in this fictitious engineering university utilizing AHP.

CONCLUSION

AHP is a Multi-Criteria Decision-Making (MCDM) tool. It has been used by many researchers for various purposes. This study is focused on the application of AHP to choose the most valuable applicants for the teaching faculty members in a pharmacy/engineering institution. A pairwise comparison is developed and prepared weight matrix and normalized weight matrix of criteria as well as of applicants in both rounds. First of all, prepare the weight matrix and normalized weight matrix based on six primary criteria as P/M, TE, IE, RP, PR/BM, and TC in the first round and again based on three secondary criteria as OP, SF, and IP in the second round. The judgments of decision makers are consistent as checked by CR which is less than 0.10. Applicant 3 and Applicant 6 have the highest weighted score in this study. Applicant 3 has the highest weighted score as compared to Applicant 6 in the first round as well as in the second round. So the decision makers are the final authority to select applicant 3 applicant 6 or both if the institute requires it. Therefore the final decision using AHP is to select applicant 3 as the most appropriate teaching faculty member in this hypothetical engineering institution based on the higher weightage of the first as well as second rounds in this study. This paper concludes that the AHP methodology has the potential to use for the selection of teaching faculty members in engineering institutions to fulfill the strategic goals. AHP has become popular for the selection of faculty members within academic institutions.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ABBREVIATIONS

AHP: Analytical Hierarchy Process; **TE:** Teaching Experience; **IE:** Industry Experience; **RP:** Research Publications; **PR/BM:** Paper reviewed/Board Member; **TC:** Technical Courses; **OP:** Oral Presentation; **SF:** Student Feedback; **IP:** Interview performance; **CR:** Consistency Ratio; **MCDM:** Multi-criteria decision-making; **W/S:** Workshops; **STTP:** Short term training program; **FDP:** Faculty development program; **TC:** Technical course; **RCI:** Random Consistency Index.

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