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Studying the Factors Related to the International Scientific Mobility of Faculty Members of the University of Tabriz

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Abstract

Purpose: The purpose of this research is to identify and determine the importance of factors related to the international scientific mobility of Tabriz University faculty members using exploratory factor analysis.

Methodology: This research is applied in terms of purpose and descriptive survey in terms of the data collection method. The statistical population of the research included faculty members of Tabriz University. Research data was collected through library study and questionnaire. The collected data were analyzed using the exploratory factor analysis method, and related factors were extracted.

Findings: After studying related texts, 25 indicators were identified and using the exploratory factor analysis method in six factors, including access to research resources and facilities, gaining a scientific reputation and CV, the environment and working conditions of universities, the cultural-geographic affinity, the development of scientific cooperation's, Accommodation costs were categorized. The importance of each index was checked from the subjects' point of view. The credibility and reputation index of universities with an average of 4.5, professional development and advancement with an average of 4.4, to create a solid scientific and research resume with an average of 4.3, observing the activities and work methods of others with an average of 4.3 were the most important.

Conclusion: The obtained results showed that the six factors of access to research resources and facilities, gaining a scientific reputation and CV, the environment and working conditions of universities, cultural-geographic affinity, the development of scientific cooperation, and accommodation costs are among the factors related to the international scientific mobility of Tabriz University faculty members.

Value: This research is important because it has identified the factors related to the international scientific mobility of Tabriz University faculty members. These factors can be considered in policy making and facilitating and encouraging the international scientific mobility of researchers and the internationalization of universities.

Keywords: *Scientific Mobility, University of Tabriz, International Scientific Mobility, Mobility of Faculty Members*

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Extended Abstract

Introduction

One of the signs of the development and progress of research and innovation systems is the scientific mobility of researchers. The international scientific mobility of researchers brings various and extensive consequences and results. However, multiple factors affect the international scientific mobility of researchers that should be studied.

Purpose

The purpose of this research is to identify and determine the importance of factors related to the international scientific mobility of Tabriz University faculty members using exploratory factor analysis.

Methodology

This research is applied in terms of purpose and descriptive survey in terms of the data collection method. Research data was collected through library and field studies (questionnaire). Using scientific texts and sources and their analysis, a questionnaire was first made, and then the components of the questionnaire were summarized and finalized by experts. A total of 25 indicators or factors were extracted and finalized. Then the opinions of the respondents were collected in the form of a five-point Likert scale. After confirming the validity and reliability, the questionnaire was distributed among the statistical sample. The validity of the questionnaire has been confirmed by the content method and reliabilities with Cronbach's coefficient of 0.83. The statistical population of the research was made up of all the faculty members of Tabriz University, whose number is about 800 people. The investigated sample was a simple random sampling method. Among these people, 268 faculty members of Tabriz University were selected as a sample according to Morgan's Kargesi table. Relevant data were collected with the help of an electronic questionnaire, and finally, 99 people responded to the questionnaire. The collected data were analyzed using the exploratory factor analysis method, and related factors were extracted.

Findings

The findings showed that six factors (access to research resources and facilities, gaining a scientific reputation and CV, the environment and working conditions of universities, the cultural-geographic affinity, the development of scientific cooperation, and Accommodation costs) explain a total of 68.36% of the total changes related to the factors affecting the international scientific movement of faculty members of Tabriz University. The highest specific value is 6.15 and 3.75, respectively, related to two factors (gaining a scientific reputation and CV, access to research resources and facilities). The first factor can explain about 24.5% and the second factor 15% of the total variance of the factorizations.

One of the ways to determine the appropriateness of a set of variables in the correlation matrix for factor analysis is to use the KMO index. According to Bartlett's sphericity test, since its value (Sig.=0.000) in Table 2 is less than 5%, the factorization ability of the data is confirmed.

Table 1. KMO sampling adequacy and Bartlett's test of sphericity in research subjects

KMO sampling adequacy size	.752	
Bartlett's test	sphericity chi-square	1.229
	degrees of freedom	300
	The significance level	.000



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To determine the amount of variance explained by the factors in the research subjects, the total variance explained by the factor analysis solution was used; the summary of the results of which is presented in Table 2.

Table 2. Total Explained Variance

Values of extraction factors			Extraction values			Initial eigenvalues			Factors
After turning									
The Cumulative Percentage Of Variance	Percentage Of Variance	Total Variance	The Cumulative Percentage Of Variance	Percentage Of Variance	Total Variance	The Cumulative Percentage Of Variance	Percentage Of Variance	Total Variance	
13.104	13.104	3.276	24.599	24.599	6.150	24.599	24.599	6.150	1
26.019	12.915	3.229	39.611	15.012	3.753	39.611	15.012	3.753	2
47.366	10.501	2.625	49.396	9.784	2.446	49.396	9.784	2.446	3
47.829	10.657	2.664	55.675	6.279	1.570	55.675	6.279	1.570	4
56.966	9.600	2.400	61.071	5.395	1.349	61.071	5.396	1.349	5
65.366	8.400	2.100	65.366	4.296	1.074	65.366	4.296	1.074	6
						69.309	3.946	0.986	7
						73.133	3.824	0.956	8
						76.533	3.401	0.850	9
						79.486	2.953	0.738	10
						82.131	2.644	0.661	11
						84.629	2.498	0.625	12
						86.729	2.100	0.525	13
						88.728	1.999	0.500	14
						90.503	1.859	0.444	15
						92.170	1.667	0.417	16
						93.581	1.411	0.353	17
						95.881	1.203	0.301	18
						95.689	1.097	0.274	19
						96.804	0.924	0.231	20
						97.558	0.754	0.189	21
						98.288	0.729	0.182	22
						98.936	0.648	0.162	23
						99.545	0.609	0.152	24
						100.000	0.455	0.114	25

To investigate the loading of the items on the factors identified in the research subjects, the factor loading before and after the rotation was used; the summary of the results of which is presented in Table 3.



Table 3. factor load after rotation in research subjects

Items	Factors					
	1	2	3	4	5	6
A5	.778					
A12	.656					
A3	.584					
A9	.579					
B8	.554		.516			
A4	.527					
A6		.842				
A7		.825				
A8		.666				
A11		.548				
B9			.788			
B13			.731			
B12			.651			
B2				.821		
B1				.694		
B7				.620		
B3				.552		
B5					.894	
B4					.832	
B6					.680	
A1						.808
A2						.787



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Table 4 shows the factors and factor loadings of each item. As it is known, six factors related to the international scientific mobility of faculty members were identified and categorized.

Table 4. factors and factor loadings of each item

representative	Items	Factor load	Factor name
A3	Access to special resources and expertise	.584	access to research resources and facilities
A4	Professional development and advancement	.527	
A5	Access to equipment and facilities	.778	
A9	Having a personal research and education agenda	.579	
A12	Access to salaries and other financial incentives	.656	
B8	meritocracy in the destination country	.554	
A6	To create a solid scientific and research resume	.842	gaining scientific reputation and resume
A7	Gain recognition in your research community	.825	
A8	Observing the activities and work methods of others	.666	
A11	Having the prospect of working with leading researchers in their research fields	.548	



B9	Accommodation quality and costs	.788	Accommodation costs
B12	Work permit for spouse and other family members	.651	
B13	Providing financial facilities and research grants	.731	
B1	The prestige and reputation of universities	.694	the environment and working conditions of universities
B2	Free environment and work independently in the destination university	.821	
B3	Providing research and library facilities	.552	
B7	Free intellectual and political space in the destination country	.620	
B4	Linguistic and cultural affinity with the destination country	.832	cultural-geographic affinity
B5	Geographic proximity to the destination country	.894	
B6	Family ties in the destination country	.680	
A1	Development of international research collaborations and networks	.808	the development of scientific cooperation's
A2	Development of scientific collaborations	.787	

After studying related texts, 25 indicators were identified and using the exploratory factor analysis method in six factors, including access to research resources and facilities, gaining a scientific reputation and resume, the environment and working conditions of universities, the cultural-geographic affinity, the development of scientific cooperations, Accommodation costs were categorized.

Conclusion

The obtained results showed that the six factors of access to research resources and facilities, gaining a scientific reputation and CV, the environment and working conditions of universities, cultural-geographic affinity, the development of scientific cooperation, and accommodation costs are among the factors related to the international scientific mobility of Tabriz University faculty members.

Value

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