

# A Comparative Study of Criteria and Indicators of Local, Regional, and National University Ranking Systems

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## ABSTRACT

University ranking systems are among the topics of interest in scientometric studies. This study aims to identify and rank the most important criteria and indicators of global, regional, and national university ranking systems. In this descriptive study, the criteria and indicators of 34 global rankings, 23 regional rankings, 88 national rankings, and 145 university rankings were reviewed. Criteria and indicators of each ranking system were written on special worksheets. Data were analyzed using descriptive statistics such as frequency, frequency percentage, and cumulative frequency. After combining the identified criteria and indicators, 17 criteria and 397 indicators were extracted. The results showed that in academic ranking systems, the criteria of research, education, students, financial factors, internationalization, and regional interactions emphasized more than other cases. Today, universities and institutions of higher education will no longer be able to carry out the new missions of scientific societies in the process of producing knowledge and wealth by using only the traditional functions of the university, namely education and research. This article shows the current trends in the national, regional, and international ranking of universities, which can provide a perspective for the development of ranking systems and increase the quality of universities.

**Keywords:** Evaluation Criteria, Educational Indicators, Global University Rankings, Regional University Rankings, National University Rankings.

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## INTRODUCTION

Academic ranking systems are one of the topics of interest in scientometric studies. Today, university rankings, as an important part of the higher education evaluation process, have received a great deal of attention globally, regionally, and nationally. University rankings, also known as "league tables", provide a list of top universities at the national, regional, or global level by comparing universities and higher education institutions based on their methods, and the criteria and indicators developed by the rating agencies. They are one of the main factors in evaluating the performance and quality of universities.<sup>[1]</sup> The governments, policymakers, news media, investment agencies, and financial institutions use them as a tool to assess the performance and quality of universities.<sup>[2]</sup>

On the other hand, academic rankings allow universities and higher education institutions to recognize their position based on

what they are and what they should be.<sup>[3]</sup> They also help students and their parents to choose the university with more knowledge and insight by comparing universities.<sup>[4]</sup>

Today, various university rankings are used around the world, and various organizations and institutions deal with it specifically, or as one of their activities. Rankings have different purposes and target different audiences. They are used to discuss what quality is in higher education and how it affects the performance of universities.<sup>[5]</sup> The ranking is a method of comparing and ranking higher education institutions according to their performance or based on several specific criteria. The most important purpose of ranking is to provide information about the quality of programs, or organizations, to experts, consumers, and policymakers. The results of the ranking are published by the public and specialized press on the Internet and inform the stakeholder.<sup>[6]</sup>

University rankings are based on various criteria and indicators. They provide a list of universities in comparison to each other and can be done on a national and international level.<sup>[7]</sup> Ranking criteria and indicators should be such that they can assess the vast amount of information gathered, from statistics to mental experiences.



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## Objectives

Given that the selection of criteria and indicators that can truly measure the quality of universities are very important, this study was conducted to identify and rank the most important criteria and indicators of global, regional, and national university ranking systems.

## Literature review

In recent years, with the development of academic ranking systems, much research has been done in this field and each of them has addressed an aspect of this issue. Some studies have described and compared ranking systems, some studies have critically analyzed ranking systems and some studies have been conducted to provide a model for ranking universities and higher education institutions. The following are some of these studies:

Taylor and Braddock in a study concerning the characteristics of the top universities compared Times and Shanghai international systems. In evaluating the criteria and indicators of the two systems, it was found that the Shanghai ranking system shows better indicators of the top universities and pays more attention to research than education. They stated that ranking systems should not impose themselves as a policy of universities at the national and international levels; rather, they should be used as a source of information to guide university policies.<sup>[8]</sup>

Hendel and Stolz, after examining 23 higher education ranking systems in 11 European countries, concluded that higher education ranking systems are not homogeneous in terms of indicators, Institutions in charge, or publishers. The results of their research showed that in general, almost all ranking systems in Europe paid attention to the sectional analysis (Departmental) and there was less approach to ranking the whole organization. Therefore, to have an accurate and a clear view of ranking and designing an ideal ranking system, there must be a deep understanding of the context of higher education and its related culture in the target country.<sup>[9]</sup>

Doulati, Jafari Tehrani, and Habibpour identified the factors affecting the research ranking of Imam-Khomeini University of Marine Sciences using interview and questionnaire techniques and multi-criteria TOPSIS decision-making method. The results showed that human, organizational, psychological, and communication factors can affect the research ranking of the universities. Also in prioritizing the studied indicators, required budget, motivational factors, scientific interaction with other universities, practical thinking, deep approach to research, providing the necessary equipment, research opportunities, inhuman relations (equipment, Internet, etc.), Formal support for research, commitment, research spirit, IT and software development, joint research projects, belief in research, and feedback and corrective actions were the main and most important indicators influencing the ranking of the university.<sup>[10]</sup>

Nisel and Nisel ranked Turkish universities using a multi-criteria model and the VIKOR method. 42 Turkish state universities were ranked based on evaluation criteria such as number of articles, number of citations, number of doctoral students, the ratio of students to faculty members, etc.<sup>[11]</sup>

Olcay and Bulu surveyed Turkish universities in the leading ranking systems of the Times, QS, Shanghai, and Europe from 2011 to 2015. The results of this study showed that factors such as the size, infrastructure, and reputation of the university, as well as the existence of medical disciplines, play an important role in achieving international indicators for Turkish universities.<sup>[12]</sup>

In a study, Asif proposed the use of Data Envelopment Analysis (DEA) as a multi-criteria decision-making tool that can be used to create ranking lists for universities in Arab countries. Criteria selected in this study include student to faculty ratio, number of faculty members working hours (weekly), the average number of conferences attended by each faculty member, the average number of publications per faculty member, number of Ph.D. Per faculty member, the number of graduate students per faculty member, the average age of faculty members, the number of committees per faculty member, and the percentage of permanent faculty members.<sup>[13]</sup>

Olcay and Bulu surveyed Turkish universities in the leading ranking systems of the Times, QS, Shanghai, and Europe from 2011 to 2015. The results of this study showed that factors such as the size, infrastructure, and reputation of the university, as well as the existence of medical disciplines, play an important role in achieving international indicators for Turkish universities.<sup>[12]</sup>

Vahdatzad, Zare, Olia, and Lotfi analyzed the ranking of Iranian universities using scientometric indicators. Findings showed that the ranking of Iranian universities in terms of the cumulative number of articles, number of citations, *h*-index, and *g*-index has a strong correlation with the results of ISC and URAP ranking systems.<sup>[14]</sup>

## METHODOLOGY

In this descriptive study, global, regional, and national university ranking systems were examined.

First, all the major systems of global university ranking, which were 18, were examined. In cases where a ranking system consisted of several sub-rankings, due to the different criteria, indicators, and weights assigned, each of these rankings were considered as a separate ranking. The Times rating system, for example, has seven sub-ratings, of those some global, some regional, and some other national, each of them with its methodology. For this reason, each of the sub-rankings were studied separately and independently and was placed in its proper place in the three categories of rankings (global, regional, and national). After determining the main and sub-rankings, 34 global rankings were identified and entered into the study. (Appendix A)

Second, to select the criteria and indicators of regional ranking, all regional university ranking systems (23 cases) were included in the study (Appendix B).

Third, the selection of national ranking systems in the different countries were based on criteria and countries were included in the study as a sample that: 1) have been present at least in the league table of two-thirds of the studied world rankings over the past two years; 2) countries with published national rankings; 3) Access to appropriate and detailed published information on ranking methodology was possible and 4) Their rating system had been published for at least 2 years. Based on these criteria, 88 national rankings were included in the study (Appendix C).

Data gathering was done by referring to the official website of each ranking. After studying the methodology of each ranking, its criteria and indicators were extracted and written on worksheets. At this stage, 17 criteria and 2709 indicators were identified. Microsoft Excel 2013 was used to merge the criteria and indicators, eliminate duplicates and rank them. Data were analyzed using descriptive statistics such as frequency, frequency percentage, and cumulative frequency. Display quotations of over 40 words, or as needed.

## RESULTS

In this study, 34 global rankings, 23 regional rankings, 88 national rankings, and a total of 145 rankings were studied. In the surveys, 17 criteria were obtained for rankings, which are shown in Table 1 based on the frequencies.

According to Table 1, the criteria of "research", "education", "financial factors", "students", "graduates", "internationalization" and "academic reputation and brand", based on their presence in the total rankings, were respectively in the first to seventh place.

In addition, 2709 indicators were extracted which after removing the overlaps and homogenizing the duplicates, finally 397 indicators were identified.

lists the indicators that have the highest frequency in each of the ranking criteria. Due to a large number of indicators, only the indicators that were in the first to the third place of each criterion are presented in the Table 2.

## DISCUSSION AND CONCLUSION

This study aimed to evaluate the criteria and indicators of global, regional, and national university rankings. Accordingly, 34 global, 23 regional and 88 national ranking systems (a total of 145) were identified and their criteria and indicators were examined.

**Table 1: Title of criteria along with attendance in global, regional, and national university rankings.**

Sl. No	Criteria	Global	Regional	National	Total	Percent
1	Research	31	23	50	104	71.72
2	Education	15	12	71	98	67.58
3	Financial factors	12	8	60	80	55.17
4	Students	3	4	62	69	47.58
5	Graduates	7	2	60	69	47.58
6	Internationalization and regional interactions	13	11	42	66	45.51
7	University reputation and brand	17	15	34	66	45.51
8	Faculty Members	7	8	45	60	41.37
9	Academic collaboration	19	14	13	46	31.72
10	Application for university admission and quality of volunteers	-	1	41	41	28.96
11	Facilities, equipment, location and infrastructure	6	4	27	37	25.51
12	Innovation and technological impact	6	5	24	35	24.13
13	Diversity and inclusion of the academic community	2	2	28	32	22/06
14	Governance, leadership, and management of the university	1	-	23	24	16.55
15	Socio-cultural factors	2	1	16	19	13.10
16	College Life	2	1	12	15	10.34
17	Environmental factors	1	1	1	3	2.06

**Table 2: The Most Frequently Indicators of Global, Regional, and National Academic Rankings**

Criteria	Indicators	Frequency	Percent	Cumulative frequency	Cumulative per cent
Research	Number and ratio of university articles	75	18.51	75	18.51
	Number and ratio of citations to university publications	54	13.33	129	31.84
	Number of university articles among 10% of most-cited publications	32	7.90	161	39.74
	Other indicators	244	60.26	405	100
	Total	405	100		
Education	The ratio of faculty members to students	55	19.92	55	14.36
	Number of Ph.D. graduates and doctoral degrees awarded by the university	38	14.36	93	24.28
	Internships and practical training available in the courses offered at the university and students' relationship with employers, experts, specialists, and work environments at the national and international level	33	8.61	126	32.89
	Other indicators	257	67.11	383	100
	Total	383	100		
Students	Students' judgment and satisfaction about the quality of education	30	10.87	30	10.87
	Number and ratio of university students by different educational levels	25	9.06	55	19.93
	Repayment rate and non-payment of student loans	24	8.70	79	28.63
	Other indicators	197	71.37	276	100
	Total	276	100		
Financial factors	Grants and scholarships awarded to students	37	14.86	37	14.86
	External grants and funding provided to the University for research and development	30	12.05	67	26.91
	Revenues from university research	23	9.24	90	36.15
	Other indicators	159	63.85	249	100
	Total	249	100		

Criteria	Indicators	Frequency	Percent	Cumulative frequency	Cumulative per cent
Internationalization and regional interactions	International student rates (general and depending on the degree)	58	27.75	58	27.75
	Student exchange	36	17.22	94	44.97
	International faculty rates	31	14.83	125	59.8
	Other indicators	84	40.2	209	100
	Total	209	100		
Graduates	The employment rate of university graduates	35	19.34	35	19.34
	University graduation rates (general and by different educational levels)	32	17.68	67	37.02
	Salaries of university graduates at the beginning of employment	23	12.71	90	49.73
	Other indicators	91	50.27	181	100
	Total	181	100		
Faculty Members	Number of faculty members by degree	34	22.67	34	22.67
	The ratio of high-ranking faculty members (professors and associate professors) to all faculty members	19	12.67	53	35.34
	University authority to promote faculty members	17	11.33	70	46.46
	Other indicators	80	53.33	150	100
	Total	150	100		
University reputation and brand	University Research's reputation	29	19.73	29	19.73
	University scientific reputation	25	17.01	54	36.74
	The attractiveness and popularity of the university among university applicants, students, companies, and organizations	19	12.93	73	49.67
	Other indicators	74	50.33	147	100
	Total	147	100		
Facilities, equipment, location, and infrastructure	Educational tools and equipment, physical facilities and technical equipment Lecture halls, seminar rooms, classrooms, studios, workshops and workstations, and students' workplaces	28	19.85	28	19.85
	Library facilities and services	25	17.73	53	37.58

Criteria	Indicators	Frequency	Percent	Cumulative frequency	Cumulative per cent
	Features, Capabilities, Visibility, and Credibility of the University Website	18	12.76	71	50.34
	Other indicators	70	49.66	141	100
	Total	141	100		
Innovation and technological impact	Number of national and international patents	27	26.22	27	26.22
	Facilities and performance of the university in the field of innovation and entrepreneurship	12	11.65	39	37.87
	Special features of the university for research and development	12	11.6560	58.26	
	Number of the spin-off and spin-out companies affiliated with the university	9	8.74	60	58.26
	Number of university publications cited in patents	9	8.74	69	67
	Other indicators	34	33	103	100
	Total	103	100		
Academic collaboration	Number of publications resulting from international cooperation	36	40	36	40
	Number and strength of the university's international cooperation with other universities	17	18.89	53	58.89
	Other indicators	37	41.11	90	100
	Total	90	100		
Diversity and inclusion of the academic community	Gender balance of faculty and students	19	26.38	19	26.38
	Number of low-income students and graduates	15	20.83	34	47.21
	Number and ratio of registered native and non-native students according to different educational levels	11	15.27	45	62.48
	Other indicators	27	37.52	72	100
	Total	72	100		
Application for university admission and quality of volunteers	The scores of the candidates accepted in the university in the entrance exam of the university	36	50	36	50
	Other indicators	36	50	72	100
	Total	72	100		

Criteria	Indicators	Frequency	Percent	Cumulative frequency	Cumulative per cent
College Life	The quality of the university campus for the students' lives	38	54.29	38	54.29
	Other indicators	32	45.71	70	100
	Total	70	100		
Governance, leadership, and management of the university	Existence of accreditation committees and evaluation system and internal quality assurance in the university and continuous monitoring of the university performance, through self-evaluation, internal and external evaluation	12	17.65	12	17.65
	Organizational and managerial vision	8	11.67	20	29.41
	Accreditations and the university's presence in various international university rankings	5	7.35	25	36.76
	Number of years of university accreditation	5	7.35	30	44.11
	Other indicators	38	55.89	68	100
	Total	68	100		
Environmental factors	University programs regarding traffic and organizing the public transportation system in the university	16	30.77	16	30.77
	University programs for the sustainability and greenery of the campus	11	21.15	27	51.92
	Other indicators	25	48.08	52	100
	Total	52	100		
Socio-cultural factors	Interaction and participation of the university with the community	23	56.10	23	56.10
	Other indicators	18	43.9	41	100
	Total	41	100		

Then, a total of 17 criteria and 397 indicators were extracted by combining the identified criteria and indicators.

The results showed that among the 17 criteria identified, the criteria of research and education are in the first and second place, respectively, which seems logical considering the two main missions of the university. The results of Taylor and Braddock also confirm that more attention is paid to research than to education.<sup>[8]</sup>

The inclusion of "financial factors" in more than 50% of the rankings, given the role that this factor plays in the overall

development and growth of universities, is desirable and indicates the attention of rating systems To this factor. On the other hand, placing the criteria of "students" and "graduates" in nearly fifty percent of the rankings indicates the attention of university ranking systems to the most important input (students) and output (graduates) of the university. This is especially important for graduates; because the graduates are the same old students who can provide feedback on the curriculum and strengthen the educational content. Graduates, as working people, can also identify what aspects of their academic experience have been useful to them in the workplace. In addition, the successes and

honours achieved by the graduates of a university are a factor in gaining or adding to the reputation of that university.

Considering the position that the internationalization criteria has gained among all the criteria studied in the present study, it should be said that today it is impossible to achieve top economic and scientific positions without having academic and scientific cooperation with other countries. Experiences of studying abroad can help increase the quality of higher education. In addition, international research collaborations between universities and their researchers also enrich the research. This thinking has become so entrenched that today many world-renowned journals, such as *Nature* and *Science*, seldom publish articles that are the work of a single group or university. Usually, researches are published in these journals that are the result of collaboration between researchers from different universities and countries. Because there is a belief that an individual or organization alone does not have all the equipment and facilities, and the collaboration of more researchers in one study means more power and less error. Therefore, it is justified to pay attention to the criteria of "internationalization" and "academic cooperation" in university ranking systems.

In addition, obtaining a sixth place for the criterion of "faculty members" shows the average attention of university rankings to this criterion. Faculty members have an effective role in promoting the national and international status of the university and any progress in the university depends on the cooperation and active presence of its faculty members. Therefore, more attention should be paid to their professional, social, living, and welfare needs. Their other job needs are the ease of establishing scholarly communication at the national and international levels, access to the latest scientific resources and databases, appropriate and up-to-date equipment and tools related to their field of expertise, the absence of which can be an obstacle to their scientific progress. Since university rankings are one of the most important tools for universities to compete with their peers, paying attention to the criteria of faculty members can lead to faculty member's professional development and thus the promotion of the university.

The criteria of "Application for university admission and quality of volunteers", "Facilities, equipment, location and infrastructure", "innovation and technological impact", "Diversity and inclusion of the academic community" are in the next place. The presence of these criteria in university rankings is below average. This is more thought provoking for the "innovation and technological impact" criterion. Because recent developments in the post-industrial age have forced societies and organizations to emphasize the development of knowledge, technology, innovation, and entrepreneurship. In such circumstances, innovations, technologies, and entrepreneurship are considered as solutions that provide employment, increase productivity, economic development, and promote social welfare. Therefore,

university ranking systems, such as societies and organizations, should pay special attention to this criterion. In the study of Dolati *et al.*, The equipment criterion has also been mentioned as one of the main and most important indicators influencing the ranking of universities.<sup>[10]</sup>

"Governance, leadership, and management of the university", "socio-cultural factors," *College Life*", and "environmental factors" had the lowest presence among the ranking criteria studied. Higher education experts have always considered the role of leadership and management in advancing the goals of higher education. On the other hand, proper leadership and management in the university manifest the abilities and promotion of faculty members and other human resources of the university. Therefore, it seems necessary to pay more attention to the factor of "governance, leadership, and management of universities" in university ranking systems. In addition, the results of the present study are different from the results of Handel and Stoll's, which included the criterion of "research" followed by social and environmental criteria.<sup>[9]</sup> Today, social and cultural development is one of the goals of countries to achieve comprehensive development. One of the necessary preconditions for the development of a country is the dominance of a scientific attitude over the culture of the society. The university is one of the main centers that can convey such an attitude to society. It is also the most important institution that is responsible for training and preparing efficient, competent, and skilled human resources to meet the real needs of society in various fields. This has increased the expectations of the university towards the community. So that the social responsibility of universities has been considered by the planners of the higher education system in different countries.<sup>[15]</sup> Accordingly, it seems that university ranking systems should pay more attention to this issue.

Regarding the criterion of "college life", it should be said that in the current situation, the significant growth of the number of students, and limited budgets and facilities have made it difficult for universities to provide appropriate facilities for students, which undoubtedly has a direct impact on students' quality of life. Quality of life is the amount of happiness of people or the degree of their satisfaction with the fulfilment of their needs and desires.<sup>[16]</sup> On the other hand, "quality of life" is a broad concept that is related to physical health, psychological status, degree of independence, social relationships, personal beliefs, and environmental factors.<sup>[17]</sup> Therefore, it is important to take any action to facilitate and improve the quality of college life. Attention to university ranking systems to this criterion can be an incentive for universities to make more efforts to improve the living conditions of students.

Universities can also play an important role in preserving the environment. They can become a green university, which ensures the production of science, products or services while reducing energy and water consumption, minimizing pollution and waste,

and improving the quality of the environment. They can also provide the community with the necessary training to improve consumption patterns and improve bioenvironmental behavior. Therefore, it is necessary to pay attention to the criteria of "environmental factors" to evaluate and rank universities.

In the study of the indicators in the global, regional, and national university ranking systems, it was found that the highest value of the index was the criteria of "research" and "education", and the lowest value was related to the criterion of "socio-cultural factors".

The results of the present study are consistent with the results of the research of Nisel and Nisel,<sup>[11]</sup> and Vahdatzad *et al.*<sup>[14]</sup> in which indicators such as number of articles, number of citations, the ratio of students to faculty members are considered as evaluation indicators. In Smco study, the best indicators were the ratio of students to faculty members, the number of working hours of faculty members, the average number of conferences attended by each faculty member, the average number of publications per faculty member, the number of Ph.D. students per Faculty member, number of master's students per faculty member, the average age of faculty members, degree index, number of committees per faculty member; And the percentage of faculty members have been permanent, which is somewhat consistent with the results of the present study.<sup>[13]</sup>

The general results of the present study indicate that in academic ranking systems, the necessity of some criteria has been emphasized more than others. These criteria include research, education, academic collaboration, and internationalization, which have been present in almost all ranking systems. This conclusion seems logical considering the functions of the university. On the other hand, given the importance of global and regional university ranking systems for research, any university that wants to achieve a prestigious position in the world is bound to strengthen this dimension.

However, today, universities and institutions of higher education will no longer be able to carry out the new missions of scientific societies in the process of producing knowledge and wealth by using only the traditional functions of the university, namely education and research. Because the continued role of universities in the knowledge-based and competitive economy of today is facing significant challenges. Accordingly, today, one of the most important approaches that have been considered by various countries is the development and guidance of universities to promote the status of universities and become a world-class university. As globalization, a competitive market, and a knowledge-based economy have created close competition between countries over the quality of universities, different countries have made detailed plans to improve the quality of their universities. On the other hand, because the presence of universities in the top positions of global university ranking

systems is often considered as the higher quality of those universities, it has caused the ranking of universities to be considered worldwide and different countries are trying to improve their universities in these rankings.

### Authors' contribution

Farideh Osareh: Conceptualization, data analysis, review and editing. Parastoo Parsaei-Mohammadi: Conceptualization, data collection, data analysis, literature search, writing. Abdolhossein Farajpahlou: Conceptualization, review and editing. Faraj Allah Rahimi: Conceptualization, organization and analysis, review and editing.

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### CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

### ABBREVIATIONS

**TOPSIS:** Technique for order preference by similarity to ideal solution; **IT:** Information technology; **QS:** Quacquarelli symonds; **DEA:** Data envelopment analysis; **ISC:** Institute for science citation; **URAP:** University ranking by academic performance.

### REFERENCES

- Bastedo MN, Bowman NA. US News and World Report college rankings: Modeling institutional effects on organizational reputation. *American Journal of Education*. 2010;116(2):163-83.
- Baldock C. University rankings and medical physics. *Australasian Physical and Engineering Sciences in Medicine*. 2013;36(4):375-8.
- Sanoff AP, Usher A, Savino M, Clarke M. *College and University Ranking Systems: Global Perspectives and American Challenges*. Institute for Higher Education Policy. 2007.
- Çakır MP, Acartürk C, Alaşehir O, Çilingir C. A comparative analysis of global and national university ranking systems. *Scientometrics*. 2015;103(3):813-48.
- Benito M, Romera R. Improving quality assessment of composite indicators in university rankings: A case study of French and German Universities of excellence. *Scientometrics*. 2011;89(1):153-76.
- Vlăsceanu L, Grünberg L, Pârlea D. *Quality assurance and accreditation: A glossary of basic terms and definitions: Unesco-Cepes Bucharest*. 2004.
- Usher A, Savino M. A global survey of rankings and league tables. *Eur J High Educ*. 2007;32(1):5-15.
- Taylor P, Braddock R. International university ranking systems and the idea of university excellence. *Journal of Higher Education Policy and Management*. 2007;29(3):245-60.
- Hendel DD, StolZ I. A comparative analysis of higher education ranking systems in Europe. *Tertiary Education and Management*. 2008;14(3):173-89.
- Doulati H, Jafari TP, Habib PF. Identification and prioritization of the factors promoting research ranking of universities using multi-criteria decision-making method European. *J Exp Biol*. 2013;3(2):556-8.
- Nisel S, Nisel R. Using VIKOR methodology for ranking universities by academic performance. *GSTF Journal of Mathematics, Statistics and Operations Research (JMSOR)*. 2013;2(1):86.
- Olçay GA, Bulu M. Rankings of Turkish universities in international university ranking indexes. *Yükseköğretim Dergisi*. 2016;6(2):95-103.
- Asif RS. Suggested Multi-Criteria Decision Support System for Ranking Universities. *ZANCO Journal of Pure and Applied Sciences*. 2016;28(2):62-71.

14. Vahdatzad M, Zare M, Olia M, Lotfi M. An analysis of the ranking of Iranian universities using scientometrics indicators. *Iranian Journal of Information Processing and Management*. 2017;33(1):117-60.
15. Neyestani M, Rameshgar R. The role of cultural activities of universities in the cultural development of society. *Cultural Engineering*. 2013;8(76):146-69.
16. Sirgy MJ, Grzeskowiak S, Rahtz D. Quality of College Life (QCL) of students: Developing and validating a measure of well-being. *Social Indicators Research*. 2007;80(2):343-60.
17. Makvandi S, Zamani M. Quality of life and its various dimensions among students of the Islamic Azad University of Ahvaz in 2010. *Jentashapir*. 2011;2(4):191-200.

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#### Appendix A: University Global Rankings (n=34).

Sl. No	Ranking name	Main ranking	Country
1	Best Global Universities Ranking	U.S. News	USA
2	Best Global Universities Rankings by Country	U.S. News	USA
3	The Best Global Universities Subject Rankings	U.S. News	USA
4	Reuters Top 100: The World's Most Innovative Universities	Reuters The World's Most Innovative Universities	USA
5	Webometrics	Webometrics	Spain
6	4icu (uniRank)	4icu (uniRank)	Australia
7	UI GreenMetric	UI GreenMetric	Indonesia
8	World University Rankings	The Times Higher Education (THE)	UK
9	World University Rankings by Subject	The Times Higher Education (THE)	UK
10	Young University Rankings	The Times Higher Education (THE)	UK
11	QS World University Ranking	QS	UK
12	QS World University Rankings by Subject	QS	UK
13	QS Graduate Employability Rankings	QS	UK
14	QS Stars	QS	UK
15	The QS Top 50 Under 50	QS	UK
16	NTU Overall Ranking	NTU Ranking	Taiwan
17	NTU Rankings by Fields	NTU Ranking	Taiwan
18	NTU Rankings by Subjects	NTU Ranking	Taiwan
19	University Ranking by Academic Performance (URAP)	University Ranking by Academic Performance (URAP)	Turkey
20	Academic Ranking of World Universities	Academic Ranking of World Universities (ARWU)	China
21	ARWU-FIELD	Academic Ranking of World Universities (ARWU)	China
22	Shanghai Ranking's Global Ranking of Academic Subjects	Academic Ranking of World Universities (ARWU)	China
23	Research Ranking of the Global Universities (RRGU)	Research Ranking of the Global Universities (RRGU)	China
24	RUR Overall Rankings (RUR World University Rankings)	Round University Ranking (RUR)	Russia
25	RUR Reputation Rankings	Round University Ranking (RUR)	Russia
26	RUR Research Performance Ranking (RUR Academic World University Rankings)	Round University Ranking (RUR)	Russia
27	RUR Subject Rankings	Round University Ranking (RUR)	Russia

Sl. No	Ranking name	Main ranking	Country
28	The Center for World University Rankings (CWUR)	Center for World University Rankings (CWUR)	Saudi Arabia (current headquarters in the UAE)
29	The CWUR Rankings by Subject	Center for World University Rankings (CWUR)	Saudi Arabia (current headquarters in the UAE)
30	U-multirank	U-multirank	European Commission
31	Scimago Institutions Rankings (SIR)	Scimago Institutions Rankings (SIR)	Netherlands
32	CWTS Leiden Ranking	CWTS Leiden Ranking	Netherlands
33	Natureindex	Natureindex	Publisher: Springer
34	SCivisions	SCivisions	Publisher: Scivision

#### Appendix B: Regional University Rankings (n=23)

Sl. No	Ranking name	Main ranking	Country
1	CHE excellence ranking	CHE	Germany
2	CHE University ranking	CHE	Germany
3	Asia Pacific region's most innovative universities	Reuters The World's Most Innovative Universities	USA
4	Europe's Most Innovative Universities	Reuters The World's Most Innovative Universities	USA
5	Best Arab Region Universities Subject Rankings	U.S. News	USA
6	Best Global Universities in Africa	U.S. News	USA
7	Best Global Universities in Asia	U.S. News	USA
8	Best Global Universities in Australia/New Zealand	U.S. News	USA
9	Best Global Universities in Europe	U.S. News	USA
10	Best Global Universities in Latin America	U.S. News	USA
11	Overall Best Arab Region Universities Rankings	U.S. News	USA
12	Asia University Rankings	The Times Higher Education (THE)	UK
13	BRICS and Emerging Economies University Rankings	The Times Higher Education (THE)	UK
14	Latin America University Rankings	The Times Higher Education (THE)	UK
15	QS University Rankings: Arab Region	QS	UK
16	QS University Rankings: Asia	QS	UK
17	QS University Rankings: BRICS	QS	UK
18	QS University Rankings: Eastern Europe and Central Asia	QS	UK
19	QS University Rankings: Latin America	QS	UK
20	ISC	ISC	Iran
21	ITU	ITU	Pakistan
22	Ranking of Top Universities in Greater China (RTUGC)	Ranking of Top Universities in Greater China (RTUGC)	China
23	U-map	U-map	Netherlands

**Appendix C: National university Rankings (n=88).**

Sl. No	Ranking name	Main ranking	Country
1	CEWS- Hochschulranking nach Gleichstellungsaspekten	CEWS- Hochschulranking nach Gleichstellungsaspekten	Germany
2	CHE Vielfältige Exzellenz	CHE Vielfältige Exzellenz	Germany
3	DAAD-Ranking	DAAD-Ranking	Germany
4	Humboldt-Ranking	Humboldt-Ranking	Germany
5	Wissenschaft weltoffen-DAAD und DZHW	Wissenschaft weltoffen-DAAD und DZHW	Germany
6	The Princeton Review's College Ranking	The Best 382 Colleges	USA
7	The Princeton Review's College Ratings	The Best 382 Colleges	USA
8	Brookings Beyond College Rankings	Brookings Beyond College Rankings	USA
9	The Daily Beast's Colleges Rankings	The Daily Beast's Colleges Rankings	USA
10	Forbes/CCAP Rankings	Forbes/CCAP Rankings	USA
11	MONEY's Best Colleges Rankings	MONEY's Best Colleges Rankings	USA
12	Social Mobility Index (SMI) Rankings	Social Mobility Index (SMI) Rankings	USA
13	The Top American Research Universities (MUP)	The Top American Research Universities (MUP)	USA
14	Best Graduate Schools	US News Best Colleges	USA
15	Liberal Arts Colleges Rankings	US News Best Colleges	USA
16	National Universities Rankings	US News Best Colleges	USA
17	Best Bang for the Buck-Midwest	Washington Monthly	USA
18	Best Bang for the Buck-Northeast	Washington Monthly	USA
19	Best Bang for the Buck-South	Washington Monthly	USA
20	Best Bang for the Buck-Southeast	Washington Monthly	USA
21	Best Bang for the Buck-West	Washington Monthly	USA
22	Best Colleges for Adult Learners-2 Year Colleges	Washington Monthly	USA
23	Best Colleges for Adult Learners-4 Year Colleges	Washington Monthly	USA
24	National Universities	Washington Monthly	USA
25	National Universities-Bachelors	Washington Monthly	USA
26	National Universities-Liberal Arts	Washington Monthly	USA
27	National Universities-Masters	Washington Monthly	USA
28	IUNE Observatory of Spanish University Research Activity	IUNE Observatory of Spanish University Research Activity	Spain
29	CYD Ranking by Areas of Knowledge	Ranking CYD	Spain
30	CYD Ranking Overall	Ranking CYD	Spain
31	Ranking de Universidades Españolas (Ranking of Spanish Universities)	Ranking de Universidades Españolas (Ranking of Spanish Universities)	Spain
32	Ranking (Synthetic Indicators University System Spanish) = ISSUE Ranking (Indicadores Sintéticos del Sistema Universitario Español)	U-Ranking (Synthetic Indicators University System Spanish) = ISSUE Ranking (Indicadores Sintéticos del Sistema Universitario Español)	Spain
33	The Good Universities Guide	The Good Universities Guide	Australia

Sl. No	Ranking name	Main ranking	Country
34	Hodnotenie vysokých škôl a ich fakúlt (Assessment of higher education institutions and their faculties) Academic Ranking and Rating Agency (ARRA)	Hodnotenie vysokých škôl a ich fakúlt (Assessment of higher education institutions and their faculties) Academic Ranking and Rating Agency (ARRA)	Slovakia
35	The Complete University Guide	The Complete University Guide	UK
36	The Guardian University League Table	The Guardian University League Table	UK
37	Japan University Rankings	The Times Higher Education (THE)	UK
38	The Wall Street Journal/Times Higher Education College Rankings (US College Rankings)	The Times Higher Education (THE)	UK
39	La Grande Guida Università Censis-la Repubblica	La Grande Guida Università Censis-la Repubblica	Italy
40	The Sunday Times Good University Guide (Ireland)	The Sunday Times Good University Guide (Ireland)	Ireland
41	Rankings of Courses	Folha	Brazil
42	RUF (Ranking Universitário Folha)	Folha	Brazil
43	URAP Turkiye Siralamasi	URAP Turkiye Siralamasi	Turkey
44	Funkce a profily veřejných vysokých škol v ČR (Mission and Profile of Higher Education Institutions in the CR)	Funkce a profily veřejných vysokých škol v ČR (Mission and Profile of Higher Education Institutions in the CR)	Czech
45	Best Chinese Universities Ranking (BCUR)	Best Chinese Universities Ranking (BCUR)	China
46	CUAA	CUAA	China
47	Netbig	Netbig	China
48	RCCSE Ranking of key Universities	RCCSE Ranking of Universities	China
49	RCCSE Ranking of Non-key Universities	RCCSE Ranking of Universities	China
50	Interfax (HPY)	Interfax (HPY)	Russia
51	RAEX	RAEX	Russia
52	Metarankingul Universitar	Metarankingul Universitar	Romania
53	Topul universităților din România (Ad-Astra)	Topul universităților din România (Ad-Astra)	Romania
54	Brand Rankings of Japanese Universities	Brand Rankings of Japanese Universities	Japan
55	Top Global University (TGU)	Top Global University (TGU)	Japan
56	Truly Strong Universities	Truly Strong Universities	Japan
57	Ekonomistudenten	Ekonomistudenten	Sweden
58	Fokus	Fokus	Sweden
59	Svenskt näringsliv ("Högskolekvalitet")	Svenskt näringsliv ("Högskolekvalitet")	Sweden
60	Sydsvenska industri- och handelskammaren	Sydsvenska industri- och handelskammaren	Sweden
61	Universitetsranking- ekonomprogram	Universitetsranking-ekonomprogram	Sweden
62	Urank	Urank	Sweden
63	El Ranking General Mide	AméricaEconomía	Chile
64	Los Rankings Por Carrera	AméricaEconomía	Chile
65	El Mercurio	El Mercurio	Chile
66	Quepasa	Quepasa	Chile
67	Ranking of best Licences, Bachelors and Grandes Ecoles	Classement SMBG des Licenses, Bachelor et Grandes Ecoles	France

Sl. No	Ranking name	Main ranking	Country
68	Ranking of Best Masters, MS and MBA	Classement SMBG des Licenses, Bachelor et Grandes Ecoles	France
69	Canada's Top 50 Research Universities	Canada's Top 50 Research Universities	Canada
70	Maclean's University Rankings	Maclean's University Rankings	Canada
71	ART-Sapiens	Sapiens Research Group (SRG)	Columbia
72	ASC-Sapiens	Sapiens Research Group (SRG)	Columbia
73	DTI-Sapiens	Sapiens Research Group (SRG)	Columbia
74	U-Sapiens	Sapiens Research Group (SRG)	Columbia
75	Joongang Ilbo University Ranking	Joongang Ilbo University Ranking	South Korea
76	Korean Council for University Education (kcue)	Korean Council for University Education (kcue)	South Korea
77	Perspektywy Fields of Study Ranking (Ranking by Subject)	Perspektywy University Ranking	Poland
78	Perspektywy State Higher Vocational Schools Ranking	Perspektywy University Ranking	Poland
79	Private University Ranking (Master Level)	Perspektywy University Ranking	Poland
80	Ranking of Academic HEIs 2017	Perspektywy University Ranking	Poland
81	SETARA 13	SETARA 13	Malaysia
82	Felvi Rangsor	Felvi Rangsor	Hungary
83	UnivPress-Ranking	UnivPress-Ranking	Hungary
84	Ránking de las Mejores Universidades Mexicanas (América Economía Ranking of Mexican Universities)	Ránking de las Mejores Universidades Mexicanas (América Economía Ranking of Mexican Universities)	Mexico
85	Hong Kong's Best University Ranking by Comprehensive (Comprehensive ranking)	Education18	Hong Kong
86	Hong Kong's best university ranked by professional education network (Education Network Ranking)	Education18	Hong Kong
87	NAAC	NAAC	India
88	NIRF	NIRF	India