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The Internationalization of Higher Education in Turkey: Creating an Index *

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Abstract

The aim of this study is to test the validity and reliability of the *Internationalization Index of Higher Education in Turkey*, which provides a ranking of institutions of higher education in Turkey according to their degree of internationalization. The item discrimination, construct validity (exploratory and confirmatory factor analyses), and internal consistencies of the index's indicators and subindicators were tested using data obtained from 300 faculty members. The findings obtained showed that the index was made up of five indicators—(*i*) university research performance, (*ii*) curricular efficiency, (*iii*) international linkages, (*iv*) student support, and (*v*) urban sufficiency—as well as of 33 subindicators, and that the index was valid and reliable. The study then made use of the Delphi method to establish the weight of the index's indicators and subindicators. In sum, it can be said that the study effectively constitutes a proof toward utilization of the *Internationalization Index of Higher Education in Turkey* for the ranking of institutions of higher education in terms of internationalization.

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Introduction

Approaches to internationalization in higher education and the tasks to be done within this context are becoming more and more of an issue in many countries. Accordingly, there is discussion regarding the problems of internationalization, and new concepts, theories, and applications are developing in relation to this topic. Just as social and economic internationalization have affected

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education, so has education affected internationalization itself. With the conclusion of the cold war period, and taking into account such processes of regionalization as the European Union, higher education has moved to the center of social, political, and economic developments (De Wit, 1995; Knight, 2015). In connection with this, higher education has been impacted by these developments both internally and externally, and it has become necessary to reconsider higher education's historical role as the center of universal knowledge and understanding. As a result of these developments, there have emerged such concepts as international education, multicultural education, comparative education, and global education.

Although the concept of internationalization has been much used in the fields of higher education systems and higher education administration, in the literature one hardly encounters a clear, consensus definition of the term. According to Knight (2004), internationalization in higher education is generally associated with such factors as the presence of an international dimension to student and faculty exchange, curricula, and teaching methods, as well as with cooperation with international organizations. Paige and Mestenhauser (1999) provide a different definition, stating that internationalization consists of "a complex, multidimensional learning process that includes the integrative, intercultural, interdisciplinary, comparative, transfer of knowledge-technology, contextual and global dimensions of knowledge construction" (pp. 504-505). Wächter (1999) defines internationalization as the systematic integration of an international dimension into higher education institutions' functions of teaching, research, and social service.

According to Knight (2008), who is among the most important authors in the literature, the "internationalization of higher education is the process of integrating an international, intercultural, and global dimension into the purpose, functions (teaching, research, and service), and delivery of higher education at the institutional and national levels." Some of the terms used in this definition were especially carefully chosen. The term "process" was used because higher education is not a static structure, but rather something that is constantly changing and progressing. The reason for the use of the term "integration" is because, in the name of ensuring internationalization, it provides for the adoption of specific agreements by institutions and countries and, within this framework, the provision of such a union allows for the further continuity of this process.

The term "international" was used because it allows for a set of relationships between countries; "intercultural" because it refers to existing cultural differences between these countries; and "global" because within the very nature of this whole phenomenon there lies a global dimension (Chan & Dimmock, 2008). Apart from these terms, the word "purpose" was used in relation to the vision adopted by institutions of higher education; "function" in relation to the elements that shape higher education at the national level; and "service" in relation to the domestic or foreign exportation of curricula. As is clear, the concepts used in the definition of the internationalization of higher education were not chosen randomly; quite the contrary, they were consciously selected owing to a number of particular significations that they contain (Bunnell, 2006; Knight, 2004, 2008).

Development of the Concept of Internationalization

In considering the subject of the internationalization of higher education from a historical perspective, it is necessary to establish a link between the contemporary internationalization of education and the emergence of the university as an institution, and to discuss developments within this framework.

Knight and De Wit (1995) explain the process of development of the concept of internationalization up to the 18th century as follows:

> "The use of Latin as a common language, and of a uniform programme of study and system of examinations, enabled itinerant students to continue their studies in one "studium" after another, and ensured recognition of their degrees throughout Christendom. Besides their academic knowledge they took home with them a host of new experiences, ideas, opinions, and political principles and views. Also—and this is important—they brought back manuscripts

> and, later on, books. They had become familiar with new schools of artistic expression, and with living conditions, customs, ways of life, and eating and drinking habits all previously unknown to them. As most itinerant scholars belonged to the élite of their country and later held high office, they were well placed to apply and propagate their newly acquired knowledge. The consequences of academic pilgrimage were, indeed, out of all proportion to the numerically insignificant number of migrant students."

Between the 18th century and World War II, the most important activity in terms of internationalization was the export of systems of higher education to—or their imposition upon—other countries. This was especially the case with the systems of higher education transferred into colonized countries by colonizer countries. For example, the education system of Latin America was mostly modeled on the higher education system of the Iberian peninsula, a situation that continues to hold largely true today. India as well as other Asian, African, Caribbean, and North American countries were bound to the British Empire, and as a result their systems of higher education were modeled on that of Britain. In the same manner, higher education in the former French colonies was built according to the French model of higher education. This situation continued after these countries had achieved independence, and it has only been in recent times that different systems of higher education have begun to exercise an influence (De Wit, 1995). Even in the United States, which is considered the dominant model of internationalization in higher education, the system of higher education was long under European influence. Oxford and Cambridge served as the initial models there, and later, with Johns Hopkins University and its mission as a research university, there emerged the German model. The reason behind this was that many students went to European universities, the initial models, in order to further their studies. There was a similar situation in higher education in Canada and Australia as well. Research and publications served as another means for the internationalization of higher education during this period. Owing to the characteristic features of the period, even though research was oriented nationally, nevertheless the exchange of ideas and information was carried out on an international level through seminars, conferences, and publications, thereby continuing international scholarly contacts. Yet another means was the international mobility of students and researchers. Although there is insufficient statistical information relating to internationally mobile students and researchers during the period, it is nevertheless impossible to claim that there was little such mobility. Based on all of this information, it can be said that, in the period through World War II, higher education was basically nationally oriented and that those who were internationally mobile consisted of small groups of wealthy students as well as qualified academicians who felt the need to study at the most prestigious places of learning. Besides this, another significant element was colonizer countries' export of their own systems of higher education into colonized countries (Society for Research into Higher Education, 1998; Xuekun, 1998).

In the period following World War II, efforts at international cooperation in higher education increased, as did international exchange agreements. In fact, these endeavors dated back to before World War II. For instance, the Institute of International Education (IIE) was founded in the United States in 1919, and the British Council was established in 1934. But it was not until after the war that internationalizing tendencies in higher education picked up speed and began to become common. The United States and the Soviet Union, having emerged from the war as superpowers, aimed to achieve better understanding with the other countries of the world and to increase their spheres of influence, and to this end they increased their activities in the areas of international educational exchange and cooperation. During this period, Europe was still nursing its wounds and experiencing the process of rebuilding, and thus was in no position to invest in exchange or cooperation in the field of international education. Many academicians were weary of war, and had been forced to emigrate, chiefly to the United States, but also to Australia, Canada, and other countries. It was in connection with this that the United States came to be a center in the educational field. At the same time, the Soviet Union strengthened its political, economic, social, and academic control over the countries of central and eastern Europe, where it applied a different variety of academic freedom, cooperation, and exchange.

By the 1980s, the global situation had changed, the European Community had become stronger, and Japan had emerged as a global economic power. This affected not only the United States' economic and political power, but also its dominance in the fields of research and education. In order to be able to compete with the United States, both Japan and the European Community began to invest in research and development programs.

The circumstances were even further altered by the fall of communism between the late 1980s and the 1990s, and the current situation has become fundamentally different than the circumstances in the 1970s and 1980s, which was the situation that had been prevalent since the end of World War II. During this period, the internationalization of higher education came to be concentrated on rather different elements. The European Commission developed a Europe-wide focus so as to establish a common regional identity in the area of higher education. Within such a framework, this regional confederation's economic leg concentrated on economic development and investment in the economic future, as well as on such elements as the employment market, foreign policy, financial incentives, and the demand for national education. The cultural function of the process of internationalization has entailed such tendencies as the development of the individual, bringing an international dimension to research and teaching, globalization, and quality assurance for research and education (Brooks & Waters, 2011).

The current period is known as the information age, and it is an age in which information is seen as a value that can be produced, bought, and sold. With the end of the cold war, the information age began to become the global market. When seen from this perspective, it is clear that there was a need for a change in understanding in terms of higher education. In relation to this, a variety of definitions of internationalization have emerged, with each of the relevant shareholders forging their own definition from their own perspective as a part of this process. Generally speaking, the approaches toward defining internationalization are as follows (Altbach & Knight, 2007; Bunnell, 2006; Chan & Dimmock, 2008; Stier, 2004; Scott, 2000; Yalçıntan & Thornley, 2007):

The *activity approach*; In this approach, internationalization is defined through categories and types of activities. This approach emphasizes academic studies in particular, and is the most widely accepted approach in terms of defining internationalization. The activities involved include both academic and extracurricular activities, among which are curricular development and innovation; student, scholar, and faculty exchange; area studies; technical assistance; intercultural training; international students; and joint research activities.

The *competency approach*; This approach focuses on the development of new skills, attitudes, and information among students, faculty, and staff. In this approach, it is less academic activities or organizational issues than the human dimension that are considered important.

The *ethos approach*; This approach focuses on developing, at universities and among faculty, an ethos or culture that values intercultural and international perspectives.

The *process approach*; According to this approach, internationalization is a process based on the integration of international dimensions or perspectives into the functions of relevant institutions.

Rationales behind Internationalization in Higher Education

As in many areas in the broader area of globalization, there are a number of significant and multifaceted influences in the field of higher education as well. Universities cannot remain indifferent in the face of the need to change that our modern globalizing world demands, and indeed they have gone beyond their national identities to display a development focused on the international market (Tezsürücü & Bursalıoğlu, 2013).

As part of this process, relations between institutions are increasingly on the rise, and universities have accordingly taken on more and more international qualities. While higher education contributes to an increase in social welfare, it makes just as much of a contribution to the renewal of outdated frameworks of knowledge through mutual interaction between countries, to the development of environments with a more pluralist dialogue, and to a rise in intellectual and academic dialogue between cultures. With the work it conducts in the areas of research and

development and social and technological innovation, the world of higher education is a fundamental corporate actor in the acceleration of international interaction and exchange (Çetinsaya, 2014). In the near future, internationalizing efforts will continue to develop at a significant and ever-increasing rate in both developed and developing countries. For this reason, it is necessary to discuss not only the meaning of internationalization in higher education, but also the rationales behind it.

Internationalization in higher education has dimensions that are social, cultural, economic, academic, and political in nature. Below, these various dimensions are presented as they exist at the national and the international level:

Rationales at the National Level

***Brainpower*:** Chief among the rationales that fall under the scope of brainpower are a country's formation of a qualified workforce and, in connection with this, its channeling of brain drain toward itself. It can certainly be said that, considering ongoing developments in the world, there is generally speaking a high mobility of population. In order to benefit in a productive manner from this mobility of population, countries engage in internationalizing efforts that will direct brainpower toward themselves (Altbach & Knight, 2007; Knight, 2004, 2007, 2008).

According to data from UNESCO (2014), over 4,000,000 students around the world are living abroad for educational purposes. This number is larger than the number of total students in higher education in many of the world's countries, and indeed it is even larger than the total population of several countries. In this respect, and in order to attract such immense potential, countries are making significant efforts and investments so as to provide their own institutions of higher education with an international dimension.

***Strategic Partnership*:** Strategic partnerships are undertaken in order to provide opportunities for institutions and organizations to engage in cooperation aimed at the implementation of such practices as high-quality teaching, instruction, learning, and youth study; institutional modernization; and social innovation. By means of such partnerships, institutions provide for the spread of innovative approaches and best practices, increase partnerships between education and the business world, and renovate and enhance the quality and scope of education, by all of which means people are encouraged toward vocational development. It is for this reason that countries work toward internationalization in higher education, with the aim of realizing such goals among countries with strategic importance to one another or, especially, with neighboring countries (Altbach & Knight, 2007; Knight, 1997, 2004, 2007, 2008; Roeloffs, 1994).

***Commercial Concerns*:** The export of education has always been viewed by institutions of higher education as a source of income. The rise, in many of the world's countries, in population and the number of the educated, along with the search for qualified people given rise to by the continuous development of scholarly and technical progress, every day increase the demand for higher education. For this reason, universities seek to create income by establishing campuses or departments in other countries or by franchising the rights to their name. This amounts to another means by which the internationalization of an institution of higher education can be realized (Altbach & Knight, 2007; Knight, 1997, 2004, 2007, 2008; Roeloffs, 1994).

***National/Institutional Benefits*:** For the most part, while developed countries are exporting education, it is especially the less developed countries who are in need of the import of education. It is both difficult and time-consuming for such countries to organize completely from scratch an educational system or to redesign particular institutions, and as a result these countries are obliged to import these from abroad. It is to universities above all that recourse is had in this process, and an internationalized university and its faculty play the key role in making the export of knowledge possible (Altbach & Knight, 2007; Knight, 1997, 2004, 2007, 2008).

***Social/Cultural Development and Mutual Understanding*:** Rationales of a social and cultural nature also lie behind the internationalization of higher education. Through internationalization, countries have an opportunity to transfer their own ideological structures or national values to other countries. This situation is also conducive to an increase in solidarity and understanding among

countries. While exchanges among countries have an impact on relations between the exchanging countries, at the same time they also lay the groundwork for the development of good relations in the future. Moreover, this process, insofar as it is directed toward the preservation and maintenance of the national culture, is an important factor influencing countries' international higher education policies. In order to reduce the homogenizing effect of globalization, countries develop policies geared toward a higher degree of mutual understanding and knowledge. The cultivation of a generation that is familiar with different cultures and can feel at home within them is, in this regard, an important source of motivation (Knight, 1997 as cited in Kırmızıdağ, Gür, Kurt, & Boz, 2012).

***Political Rationales*:** Internationalization plays an intermediary role in the development of countries' images and in their establishment of good relations with one another. In other words, higher education is a kind of diplomatic investment. For example, in developing countries, granting scholarships to those seen as future leaders is considered an effective method for developing mutual understanding and establishing good relationships (Knight, 1997 as cited in Kırmızıdağ et al., 2012). An Arab prince who graduated from Ankara's Middle East Technical University (METU) facilitating a Turkish firm's activities in Saudi Arabia might be given as an example of the facilitating role that higher education can play in international relations. Similarly, following World War II, internationalizing policies played an important role in the development of French-German relations (Roeloffs, 1994 as cited in Kırmızıdağ et al., 2012).

Rationales at the International Level

***International Prestige*:** It is important for universities to become well known at the international level, as this allows them to attract quality students and faculty and thereby increase their own quality as an institution. One way for an institution of higher education to increase its profile on the world stage is through the university rankings made by a number of different organizations. While there may be some argument concerning the soundness and reliability of such rankings, it can nevertheless be said that they are considered important by universities themselves, or at least by society at large. One of the companies that carries out these rankings at the international level, QS World University Rankings (2014), counts the concept of internationalization among its indicators.

***Improving Quality/International Standards*:** During the higher education internationalization process, it is important to adopt a set of international standards. Adopting international standards and ensuring improvement in terms of quality are achieved by means of internationalization. A university that possesses an international dimension in such areas as research, administration, and education is better able to address a broader audience around the world.

***Student/Faculty Development*:** In order for an employment market to proceed from a national to an international and multicultural level, it is necessary that the university students to be employed, as well as the faculty that train them, develop an understanding that embraces an international dimension and cultural diversity. This, in turn, is linked to the process of internationalizing universities.

***Income Generation*:** Universities that are experiencing financial difficulties and that would like to generate sources of income within a competitive environment choose internationalization in order to distinguish themselves from other institutions of higher education. Within this framework, the income generated through internationalization is not only used for the development or revitalization of the institution of higher education, but can also be seen as a commercial profit. Internationalization thus provides a benefit in that, just as in some situations it is utilized solely for commercial concerns, sometimes it is used exclusively for the further development of education and for achieving a fuller actualization in terms of internationalizing higher education.

***Strategic Partnerships*:** The formation of strategic partnerships is both a reason for and a result of internationalization in higher education. The desire to form international partnerships in order to implement activities in such areas as research and education, especially, reveals the necessity of internationalization. At the same time, the formation of such a partnership represents an important step in terms of completing the internationalizing process.

***Production of Research and Knowledge*:** Institutions of higher education are important sites for conducting research and generating knowledge. However, it is essential that the production of research and knowledge occur not only on the national, but also on the international level. There are a number of problems on the international level that require solutions, solutions which are only possible if research is carried out and knowledge produced not simply in certain universities within a particular country, but rather through the collaboration of a great variety of universities in different countries. This is an important means for institutions of higher education to implement internationalization.

Dimensions of Internationalization in Institutions of Higher Education

Within the framework of the internationalization of higher education, there are four main categories of activity, which, according to Knight and De Wit (1995), are as follows: research-related activities; education-related activities; activities related to technical assistance and development cooperation; and extracurricular activities and institutional services.

***Research-related activities*:** Conducting research is the fundamental goal of universities. In the beginning, universities were religious in their identity and it was only in the Middle Ages that they began to concentrate on academic studies. Then, there was a turning point in Germany in the 19th century with the development of the Humboldtian model and the commitment to a "research mission" (Tezsürücü & Bursalıoğlu, 2013). There is a significant link between the area of research and the contribution that internationalization makes to research results. Research is largely international by nature already, addressing itself to networks of researchers by means of international communities. In this area, and within the context of internationalization in higher education, the primary tasks carried out are as follows:

- Founding centers of excellence and research with international impact and focus
- Integrating international perspectives and subjects into existing research centers and programs
- Increasing collaboration with international partners
- A diverse approach to ensure that research is applied internationally
- Spreading research results and sharing knowledge through international networks and communications systems
- Formation of a network of research institutes organized according to discipline and/or field of specialization
- Contributing to international R&D programs and their funding
- Individual international mobility for researchers
- Paid leave opportunities for faculty to participate in international activities
- Research-related training for graduate students
- Quality control and assessment of research at the international level
- A structural-based orientation toward international research subjects: regional and global environmental problems, international relations, international labor and law, etc.
- Relations between researchers, research institutes, and the international business world

***Education-related activities*:** The internationalization of education encompasses the broadest possible range of activities. This situation is entirely normal considering the number and variety of actors who play a role in education. However, generally speaking, when we discuss the internationalization of education, what is meant is largely instruction and training. We must also include in this field the great variety of support services that internationalization necessitates. The primary education-related activities of internationalization are as follows:

- Internationalization of curricula: adding international content to disciplines, comparative approaches, problem-oriented approaches and interdisciplinary studies, area studies, international and intercultural studies, developing international programs
- Foreign language studies
- The admittance of foreign students into undergraduate and graduate programs
- Job opportunities abroad for undergraduate and graduate students
- International collaboration agreements
- International student exchange
- International visiting faculty
- Joint or double degree programs
- Work and degree equivalency systems
- Course credit transfer systems
- International internships for students and faculty
- International area studies for students
- International summer courses and programs
- International working visits by students and faculty
- Intercultural education

***Technical assistance and development cooperation*:** Technical assistance and development cooperation refers to the technical assistance given by higher education institutions in the industrialized world to developing countries, and, in recent years, especially to institutions in central and eastern Europe. Activities that might be included within this category are the following:

- Training of students and staff
- Counseling for educational programs
- Research education
- Exchange of material and technical equipment and training in its use
- Counseling for administration
- Providing support for expenditure on the maintenance of bilateral relations

***Extracurricular activities and institutional services*:** This category includes a variety of clubs, activities, and associations geared toward international problems and activities for both foreign and local students. They are special services meant to provide support for internationalization. The primary activities included within this area are as follows:

- International student counseling
- Orientation programs
- Special events and other social opportunities for visiting foreigners
- International student associations
- Providing refuge for students and researchers
- International guest organizations
- Providing libraries, restaurants, medical services, and other such institutional opportunities for foreign students and researchers

Basic Strategies for and Indicators of Internationalization

Education, research, and service are among the most fundamental functions of institutions of higher education, and numerous efforts are being put forward to make these functions operate efficiently by integrating into them an international dimension. However, owing to certain deficiencies in institutional structure, these efforts and activities either do not have a sufficient impact

or even disappear altogether. For any given institution, internationalization requires a culture, a policy, planning, and organization. Within an institution of higher education, whenever internationalization activities are separated from one another and left on their own, the utility and impact that internationalization provides are reduced. Some of the fundamental indicators relating to institutional strategies, which are an indispensable part of successful internationalization, are the following (Knight & De Wit, 1995; Knight, 2008):

- Senior executives and boards of directors according importance to and providing support for internationalization
- Among students, staff, faculty, and society at large, the creation of awareness regarding the needs, goals, and uses of internationalization
- A significant part of faculty or staff taking part in and providing support for internationalization
- Within an institution, the creation of international offices and job definitions (an office formed by experienced staff who can provide counseling, coordination, and communications support is of key importance)
- Sufficient financial support both internal and external
- The development of internationalization policies and strategies; the identification of needs and resources; strategic planning so as to specify goals, targets, and priorities
- Incentives and awards for faculty and staff
- The creation and coordination of effective communications channels
- Annual planning, budgeting, and appraisal

Based on global experience, the International Association of Universities has identified the following as the most important strategies for globalization in higher education (IAU, 2014):

- Inclusion within curricula programs geared toward fashioning an understanding of internationalization
- Development of human resources geared toward the implementation of the social, economic, and cultural results of the internationalization of universities
- The creation of scholarly and cultural cooperation on the part of universities' student organizations and academic committees
- Comparison of existing curricula with other international curricula
- Introducing students to the talents and abilities of the international arena
- Planning of textbooks specially geared toward foreign students
- Exchange of experiences among universities
- The creation of a higher and more efficient degree of international cooperation among universities
- Enriching university environments in line with global standards regarding educational and research activities
- Development of university curricula with an aim toward regional and international cooperation
- Accepting more foreign students and faculty at universities
- The planning, implementation, and provision of efficient collaborative access to international research projects

- Preparing facilities for the use of new technologies
- Implementation of academic collaboration through cooperation on an international and regional level
- Development of financial opportunities for institutions of higher education
- Carrying out the necessary administrative preparations for the development of higher education at the international level
- Carrying out the necessary administrative preparations to overcome the difficulties faced in the field of higher education
- Development of international and regional cooperation in order to raise the quality of curricula

Internationalization Strategy; specifies the main objectives within the scope of a higher education institution's mission and strategic plan, and in this way ensures commitment to internationalization. These objectives indicate intentions regarding a higher education institution's faculty and student profile, the curriculum to be implemented, and domestic and foreign partnerships. Supportive objectives and performance indicators clarify these objectives by intelligibly expressing which standards a higher education institution has accepted so that its activities might be put to best use. The primary objectives of internationalization strategy are as follows:

- Development of research, study, and training initiatives for the benefit of students, staff, international partners, and other shareholders
- International recognition for the higher education institution's areas of research through the development of modern, interdisciplinary, and socially engaged qualities
- Acceptance, education, and support of integration into the higher education community of undergraduate, graduate, and higher-level students
- The creation in students of an international orientation and an intercultural understanding through the development of programs that incorporate an international perspective and the organization of student exchange programs
- Offering an equivalent transnational education opportunity on the campus where the higher education institution's education is provided
- Forming strategic partnerships with prestigious and quality international organizations for the purpose of department accreditation, harmonization of research and scholarships, and student and faculty exchange
- The training of internationally known professionals who can engage in various professional initiatives both within their country of residence and without
- Increasing the capacity of the higher education institution's ability to work together on international projects with international organizations, local governments, and businesses
- Developing, in the societies of the world's least developed regions, the capacity for self-reliance in terms of leadership, problem-solving, and economic and social development
- Development among academic and administrative staff of a profound understanding of internationalization and the benefits it brings to higher education institutions, their regions and countries, and the world at large

University Rankings in the Context of Internationalization

In the relevant literature, those working both in the press and in the field of higher education follow and discuss with great interest the university rankings prepared by certain institutions and organizations. There are debates in particular concerning the reliability of these rankings in terms of the differences shown by the rankings prepared by different institutions and organizations.

Although there is not a large number of such ranking systems, the seven most important ones are the following:

- Shanghai Jiao Tong University
- Times Higher Education–QS
- Webometrics
- HEEACT
- Leiden
- SCImago
- URAP

The most fundamental difference distinguishing these ranking systems from one another are the indicators/criteria that they use.

The Shanghai Jiao Tong was the first institution to multidimensionally rank world universities. The basic aim of the ranking, called the *Academic Ranking of World Universities* and first issued in 2003, is to determine the position of universities in China as compared to the world. The ranking's indicators are: (*i*) alumni as Nobel Laureates and Fields Medalists (%10), (*ii*) staff as Nobel Laureates and Fields Medalists (%20), (*iii*) highly cited researchers in 21 broad subject categories (%20), (*iv*) papers published in the journals *Nature* and *Science* (%20), (*v*) papers indexed in SCI ve SSCI (%20), and (*vi*) per capita academic performance (%10). As can be seen from these indicators, the ranking focuses particularly on the basic sciences.

The *Times Higher Education–QS*' (THE–QS) ranking of the best 200 world universities is a joint ranking produced by the *Times Higher Education* magazine and the Quacquarelli Symonds company. The ranking's indicators are: (*i*) global academic peer review (%40), (*ii*) employer reputation (%10), (*iii*) student/faculty ratio (%20), (*iv*) citations per faculty over the last five years (%20), (*v*) international staff ratio (%5), and (*vi*) international student ratio (%5).

The *Webometrics Ranking* is issued by the Cybermetrics Lab, a Spanish research group. Published twice yearly since 2004, this ranking's largest difference is the fact that it evaluates over 18,000 universities around the world. The ranking's indicators are: (*i*) number of links from other sites (%50), (*ii*) number of pages found by search engines (%20), (*iii*) number of Adobe, Word, and PowerPoint documents on the site (%15), and (*iv*) number of papers found on the site via Google Scholar (%15).

The *Higher Education Evaluation and Accreditation Council of Taiwan* (HEEACT) ranking is focused exclusively on research. The ranking's indicators are: (*i*) research productivity (%20), (*ii*) research impact (%30), and (*iii*) research excellence (%50).

The *Leiden* ranking is issued by the Centre for Science and Technology Studies, based at Leiden University in the Netherlands. The ranking's indicators are: (*i*) number of publications, (*ii*) number of citations per publication, (*iii*) number of publications multiplied by normalized mean impact according to field, and (*iv*) number of citations per publication divided by mean impact according to field.

The *SCImago* ranking is a ranking obtained by means of the Scopus database. The ranking's indicators are: (*i*) number of papers (over the past four years), (*ii*) number of citations per paper, (*iii*) ratio of papers produced through international collaboration, (*iv*) normalized impact factor of the journals in which papers were published, and (*v*) normalized value of number of citations according to field.

The University Ranking by Academic Performance (URAP) Research Laboratory was founded within the Informatics Institute at Middle East Technical University (METU) in order to carry out

academic studies on ranking systems based on academic performance. The ranking's indicators are: (*i*) number of publications, (*ii*) total number of academic documents, (*iii*) number of citations and total publication impact, (*iv*) total number of citations, and (*v*) international collaboration.

When all seven of the aforementioned rankings' indicators are examined in detail, it can be seen that, in particular, Shanghai Jiao Tong, HEEACT, Leiden, SCImago, and URAP's indicators are based entirely on research results. On the other hand, although THE–QS and Webometrics' indicators are more comprehensive, they are also more subjective. The most significant points of criticism regarding the rankings are the fact that they are limited to research results, with quality of education and contribution to society nowhere being taken into account.

Purpose and Scope of the Study

Over the last fifty years, economic, technological, and social developments in the world have especially increased the need for skilled labor. In parallel with this need, and especially in recent years, there has been a boom in the demand for higher education, with the number of continuing students in higher education rising above 170 million. The increase in highly educated and skilled labor by means of higher education has resulted in the emergence of such phenomena as the knowledge economy and globalization. This has, in turn, increased questioning of the quality of higher education and, with it, competition.

Throughout the world, the competitive environment that has emerged through questioning of the concepts of quality and performance in higher education has brought about the necessity of universities to establish and adopt their own institutional identities and culture of quality. As a result, countries with a globalized university make use of such universities as symbols of national productivity, power, and prestige. In this respect, within a globalized and globalizing university environment, it can be said that the development of ranking systems for international universities is, with time, becoming a fundamental enterprise. Such rankings allow for the evaluation and comparison of universities in terms of the quality of their education and research. As such, the purpose of university rankings can be summarized as follows:

- Allowing students to choose those institutions and programs of higher education most suitable for them
- Introducing universities to the employment market on a national level
- Evaluating the international higher education market
- Providing extensive knowledge to students, faculty, and funders
- Creating positive competition

In line with these purposes, there have arisen a number of studies ranking the world's universities according to a variety of criteria. When we examine the rankings of world universities according to these particular criteria, we see that most of them take academic publications as their foundation. There are two important deficiencies in such rankings: (*i*) the fact that most ranking systems are limited to the top 500 universities in the world, and (*ii*) the fact that ranking systems are weighted toward academic publications. As a result of these two deficiencies, universities are implicitly ranked according to their level of internationalization. In order to address this issue, this study aims to develop an index for a more wide-ranging ranking system within the context of the internationalization of universities.

Method

Creation of the Index Draft

Creation of Indicators and Subindicators

The indicators and subindicators of the index have been prepared in accordance with the views of faculty employed at private (*vakıf*) and public (*devlet*) universities in Turkey and are meant for the determination of the index criteria that can be used in the specification of universities' levels of internationalization. During preparation of the index, the first priority was to analyze the relevant literature, both foreign and domestic. Then, with the assistance of the data thus obtained, we attempted to specify the basic, shared qualities of world-renowned universities (the top 500) as well as universities perceived as having a high international profile. Subsequently, the indicators and subindicators were reviewed by researchers and made still more distinct. In addition, a workshop was organized in Istanbul, attended by the presidents of private and public universities in Turkey with a good deal of experience in internationalization, as well as by bureaucrats from the Council of Higher Education (*Yükseköğretim Kurulu*, YÖK) and the Ministry of National Education (*Milli Eğitim Bakanlığı*, MEB), all of whom shared their views and experiences on the subject of internationalization indicators. In this manner, the indicators were not only expanded but also weeded out until the index's indicators achieved their final form.

Content Validity

Content validity is defined as an indicator of whether or not the items of a sampling scale are representative enough for the behavioral field to be measured (Dağ, 2005). In content validity, the decision as to whether or not the scale and each of its subindicators serves the stated purpose is left not to those who developed the measure, but to experts (Şencan, 2005). This study of the index's content validity was finalized via the views of eight volunteer experts working in the area of higher education administration. These experts were asked to read each subindicator in the index draft and, for each of the subindicators, to evaluate the degree to which it could measure the internationalization of universities. The experts evaluated the suitability of the subindicators' content validity on a scale of 1 (entirely unsuitable) to 5 (entirely unsuitable). In order to determine the index's content validity, calculations were made according to the Lawshe Content Validity Ratio (CVR), with the results presented in Table 1.

The values obtained from the results of the Lawshe CVR range between –1 and +1. The ratios obtained were compared with the Lawshe minimum content validity ratios displayed in the p=0.05 reliability interval for differing numbers of expert sizes: for eight experts, the minimum Lawshe CVR is 0.78 (Lawshe, 1975). All of the 33 subindicators in the index draft were above CVR 0.78, and after content validity the index draft was formed from 33 subindicators.

Table 1. Lawshe Content Validity Ratios

Indicator No.	No. of Experts (n)	CVR	Indicator No.	No. of Experts (n)	CVR	Indicator No.	No. of Experts (n)	CVR
Indicator 1	8	1	Indicator 12	8	1	Indicator 23	8	1
Indicator 2	8	1	Indicator 13	8	1	Indicator 24	8	1
Indicator 3	8	1	Indicator 14	8	1	Indicator 25	8	1
Indicator 4	8	1	Indicator 15	8	1	Indicator 26	8	1
Indicator 5	8	1	Indicator 16	8	1	Indicator 27	8	1
Indicator 6	8	1	Indicator 17	8	1	Indicator 28	8	1
Indicator 7	8	1	Indicator 18	8	1	Indicator 29	8	1
Indicator 8	8	1	Indicator 19	8	1	Indicator 30	8	1
Indicator 9	8	1	Indicator 20	8	1	Indicator 31	8	1
Indicator 10	8	1	Indicator 21	8	1	Indicator 32	8	1
Indicator 11	8	1	Indicator 22	8	1	Indicator 33	8	1

Participants

In the creation of this index, stratified sampling was used, on the basis of 317 staff members working at eight universities in various regions of Turkey. Before proceeding with analysis, 17 staff members were removed from the data obtained insofar as it was thought that they would negatively impact the reliability of the study, as they gave the same score to every indicator and were thus believed not to be sincere in their answers. As a result, the data used in the study were ultimately obtained from 300 participants. Of the 300 staff members, the data obtained from 150 (50%) were used for the *Index*'s *exploratory factor analysis*, while another 150 (50%) were used for the *Index*'s *confirmatory factor analysis*. Table 2 presents the demographic qualities of the participants.

Table 2. Demographic Distribution of Participants

Variables		***1***	***2***	***3***	***Toplam***
		Male	Female		-
Gender	*n*	174	54		300
	%	58.00	42.00		100
		Prof.	Assoc. Prof.	Asst. Prof.	-
Academic Title	*n*	96	103	101	300
	%	32.00	34.33	33.67	100

Note: Age *M*=47.6, SD=6.5

Procedures

In order to determine the faculty members' views in relation to internationalization criteria of universities, the relevant literature was reviewed and the researchers held five meetings and two workshops with 33 participants, as a result of which an initial 72 subindicators were obtained, which were later reduced to the 33 subindicators used to form the index draft.

The participants rated each subindicator on the index draft on a 5-point Likert scale, from 1 (Not at all) to 5 (Essential), according to how important they considered it to be as an indicator of the internationalization of institutions of higher education. The data for the study was obtained by presenting the index draft to staff members. These participants first filled out the demographic information section of the survey, after which they marked the index's subindicators according to the aforementioned scale. Filling out the index was entirely voluntary, and permission to do so was obtained from university administration. The study was conducted on the basis of the data obtained from the 300 faculty members as analyzed according to: (*i*) item discrimination, (*ii*) construct validity, and (*iii*) reliability. Within this framework, analysis was performed using *Pearson's moment coefficient of skewness* in order to determine the item-total values of the index, while in order to obtain an idea regarding the structure of the index, *exploratory* and *confirmatory factor analyses* were conducted. In order to determine the level of internal reliability of the index and the heterogeneity of the indicators, *Cronbach's alpha* internal consistency coefficient was used. Finally, the *Delphi method* was used to obtain the weight percentages of the index's indicators and subindicators.

Findings

Item Discrimination and Exploratory and Confirmatory Factor Analyses

For the item discrimination analysis of the 33 subindicators found on the index draft form, the group of 300 participants was used. Even so, in order to determine the factor structure of the index, first the participants were divided randomly into two different groups so as to conduct exploratory and confirmatory factor analysis, with the first group of participants (n = 150) being used for exploratory factor analysis and the second group of participants (n = 150) for confirmatory factor analysis.

Item Discrimination

Using the data obtained, first those forms in which all the subindicators were given the same score, and thus considered not to have been sincerely marked, were removed from the research scope, after which a frequency analysis was conducted and those data determined to have been incorrectly entered were designated as lost data; by then applying series means to the lost data, a full data set was produced. Second, the data were checked for normality and extreme values were removed by using their z-scores. For each subindicator, the z-scores were analyzed, with any data having a z-score above |3.29| being removed from the scope of the analysis (Tabachnick & Fidell, 2013, p. 73). Third, with the aim of determining how sufficient the index draft's subindicators were for distinguishing universities in terms of their characteristics, the item-total correlation was calculated on the basis of the data obtained from the 300 participants (see Table 3). The correlation coefficients obtained through item-total correlation ranged between .25 and .51, and statistically all of the subindicators were significant.

Table 3. Item-Total Correlation of the Index

Subindicator	*r*	Subindicator	*r*	Subindicator	*r*
Subindicator 1	.51*	Subindicator 12	.32*	Subindicator 23	.35*
Subindicator 2	.43*	Subindicator 13	.41*	Subindicator 24	.47*
Subindicator 3	.34*	Subindicator 14	.32*	Subindicator 25	.24*
Subindicator 4	.27*	Subindicator 15	.36*	Subindicator 26	.41*
Subindicator 5	.44*	Subindicator 16	.33*	Subindicator 27	.30*
Subindicator 6	.49*	Subindicator 17	.30*	Subindicator 28	.29*
Subindicator 7	.34*	Subindicator 18	.36*	Subindicator 29	.27*
Subindicator 8	.41*	Subindicator 19	.36*	Subindicator 30	.27*
Subindicator 9	.30*	Subindicator 20	.39*	Subindicator 31	.36*
Subindicator 10	.41*	Subindicator 21	.25*	Subindicator 32	.32*
Subindicator 11	.29*	Subindicator 22	.32*	Subindicator 33	.41*

n= 300, *p<.01

Exploratory Factor Analysis

Following item discrimination analysis, in order to determine the number of factors in the scale, firstly principal component analysis and Horn's parallel analysis were conducted (Horn, 1965). At the second stage, exploratory factor analysis was done using principal axis factor analysis with oblimin rotation. The rationale behind the utilization of oblimin rotation is the hypothesis that the index factors (indicators) may be related. At the third stage, in order to assign the subindicators to the factors, the factor loads were analyzed, theoretically taking conformity into account. In parallel with this, subindicators with factor loads below |.40| or with factor loads above |.40| for at least two factors were not assigned to the factors.

Observing that the data obtained from the staff members (n = 150) in the first participant group were not normal (Kolmogorov-Smirnov z = 2.49-6.91, p<.01), as a result the 13 data determined as outliers according to z-score were removed from the analyses; thus, as a result, the data analysis used data obtained from a set of 137 faculty members. Owing to the results of the *KMO* (.90) and

Bartlett (p<.01) tests, it was understood that exploratory factor analysis could be performed. Subsequently, through principal component analysis and Horn's parallel analysis, a structure of five (5) factors, with an eigenvalue of greater than 1 explaining the variance of 67.66%, was seen to be suggested. When the exploratory factor analysis was conducted with oblimin principal axis rotation, all of the 33 subindicators were determined to be loaded above |.40| in only one factor. As presented in Table 4, the total of the eigenvalue in the index factors is 16.11, the total explained variance percentage is 67.66, and the factor loads of the subindicators vary between |0.48| and |0.86|. Additionally, when factor analysis was repeated on the 33 subindicators, it was observed that the subindicators' factor loads had a high factor load for only one factor.

Table 4. Results of Exploratory Factor Analysis on the Index

Indicators	**University Research Performance**	**Curricular Efficiency**	**International Linkages**	**Student Supports**	**Urban Sufficiency**
Subindicator No	*Factor Load*	*Factor Load*	*Factor Load*	*Factor Load*	*Factor Load*
Subindicator 1	.72	-	-	-	-
Subindicator 2	.59	-	-	-	-
Subindicator 3	.63	-	-	-	-
Subindicator 4	.69	-	-	-	-
Subindicator 5	.64	-	-	-	-
Subindicator 6	.48	-	-	-	-
Subindicator 7	.53	-	-	-	-
Subindicator 8	.52	-	-	-	-
Subindicator 9	.58	-	-	-	-
Subindicator 10	-	.80	-	-	-
Subindicator 11	-	.70	-	-	-
Subindicator 12	-	.63	-	-	-
Subindicator 13	-	.71	-	-	-
Subindicator 14	-	.69	-	-	-
Subindicator 15	-	.60	-	-	-
Subindicator 16	-	.57	-	-	-
Subindicator 17	-	-	.67	-	-
Subindicator 18	-	-	.71	-	-
Subindicator 19	-	-	.70	-	-
Subindicator 20	-	-	.70	-	-
Subindicator 21	-	-	.67	-	-
Subindicator 22	-	-	.52	-	-
Subindicator 23	-	-	.56	-	-
Subindicator 24	-	-	-	.76	-
Subindicator 25	-	-	-	.81	-
Subindicator 26	-	-	-	.77	-
Subindicator 27	-	-	-	.80	-
Subindicator 28	-	-	-	.74	-
Subindicator 29	-	-	-	.64	-
Subindicator 30	-	-	-	-	.86
Subindicator 31	-	-	-	-	.68
Subindicator 32	-	-	-	-	.63
Subindicator 33	-	-	-	-	.79
Eigenvalue	**5.41**	**3.21**	**2.91**	**2.54**	**2.04**
Explained Variance	**27.10**	**11.50**	**10.99**	**10.02**	**7.87**

As a result of the exploratory factor analysis that was conducted, the index was organized by dividing the total of 33 subindicators into five indicators: (*i*) university research performance, (*ii*) curricular efficiency, (*iii*) international linkages, (*iv*) student support, and (*v*) urban sufficiency.

Confirmatory Factor Analysis

Based on the factors (indicators) obtained through EFA, the LISREL 8.51 program was used to perform confirmatory factor analysis with the data obtained from the two participant groups. Before performing confirmatory factor analysis, procedures similar to those used in the exploratory factor analysis were initially undertaken. While controlling for normality in the data set, the z-score was examined for each subindicator remaining after exploratory factor analysis, with extreme values being removed from the data set. For the confirmatory factor analysis, the correspondence statistics were analyzed using the maximum likelihood method. After confirmatory factor analyses were applied to the data obtained from the two participant groups, they were subsequently also applied to the 300-participant data set made up of the union of the first and second participant groups.

Observing that the data obtained from the staff members (n = 150) in the second participant group were not normal (Kolmogorov-Smirnov z = 2.47-7.01, p<.01), as a result the 7 data determined as outliers according to z-score were removed from the analyses; thus, as a result, the data analysis used data obtained from a set of 143 faculty members. In order to determine the index's construct validity, the confirmatory factor analysis was conducted in two stages. At the first stage, it was determined whether or not the predicted values of the factors obtained through exploratory factor analysis in relation to the scale before evaluating the results of the confirmatory factor analysis exceeded their theoretical limits. From the results thereby obtained, the values that did not exceed theoretical limits were determined. The Chi-squared (χ2) value and the statistical significance levels were determined [χ2=782.41, df=357, p<.01] in relation to the confirmatory factor analysis. Based on the degree of freedom, the low Chi-squared (χ2) value showed that the suggested model was suitable for the data collected. Additionally, the other goodness of fit indices [GFI=0.94, AGFI=0.91, PGFI=0.90, RMSEA=0.06, CFI=0.94] belonging to the models also showed that the index's suggested model was suitable. According to this result, within the scope of standard goodness of fit indices, it can be said that the values obtained in relation to the working model, once analyzed, validate the modeled factor structure.

At the second stage, the Chi-squared (χ2) value and the statistical significance levels [χ2=981, 37, df=388, p<.01] were determined for the scale of the goodness of fit indices in relation to the confirmatory factor analysis applied to all of the participants (n = 300), consisting of both the first (n = 150) and the second (n = 150) participant groups. Based on the degree of freedom, the low Chi-squared (χ2) value showed that the suggested model was suitable for the data collected. Additionally, the other goodness of fit indices [GFI=0.91, AGFI=0.92, PGFI=0.90, RMSEA=0.05, CFI=0.95] belonging to the models also showed that the index's suggested model was suitable (see Table 5). According to this result, within the scope of standard goodness of fit indices, it can be said that the values obtained in relation to the working model, once analyzed, validate the modeled factor structure.

Table 5. Goodness of Fit Parameters in Relation to the Index's Confirmatory Factor Analysis Model

Goodness of Fit Parameter	***n* = 150**	***n* = 300**
	Coefficient	**Coefficient**
GFI	.94	.91
AGFI	.91	.92
PGFI	.90	.90
CFI	.94	.95
RMSEA	.06	.05
df	357	388
χ^2	782.41	981.37
χ^2/sd	2.19	2.52

Upon analysis of the path diagram regarding the model resulting from confirmatory factor analysis, it was determined that the standardized coefficients obtained from the CFA and showing the relationship between the factors and the subindicators ranged between 0.45 and 0.91.

Reliability Analysis

Following confirmatory factor analysis, the scale's reliability was analyzed using the internal consistency method. While the index's Cronbach's alpha internal consistency coefficient ranged between .80 and .91, the whole was .87 (see Table 6).

Table 6. Internal Consistency Coefficients of the Index

Factors	**No. of Subindicators**	**Alpha**
1- University Research Performance	9	.91
2- Curricular Efficiency	7	.88
3- International Linkages	7	.87
4- Student Support	6	.83
5- Urban Sufficiency	4	.80
Total	**33**	**.87**

Conclusion

The indicators making up the index were composed using the scaling system, while the weights of the subindicators were composed using the Delphi method. Within this framework, first the weights of the internationalization subindicators formed after factor analysis were applied to the 17 panel members, made up of university presidents, vice presidents, deans, and higher education administrative staff (Mitchell, 1991; Powell, 2003). After the first round, the mean weights given by the panel members were collected, and then, for the second round, they were sent to the panel members again, and the panel members reviewed the weights by examining their own weights and the mean weights. In sum, each round was structured according to the weight given in the previous round. The entire process proceeded on a face-to-face basis with the participants. In conclusion, the index, as it is not focused solely on academic publications, has at the foundation of the ranking system not only universities' academic publications but also very different indicators as well. The indicators used and their data sources are presented in Table 7, with the explanations of each indicator following.

Table 7. Indicators and Sources of Data

Indicator	Subindicator	Source
University Research Performance	**1.** Number of papers per faculty member	WoS
	2. Number of international awards per faculty member	Relevant University
	3. Number of presentations at international academic events per faculty member	Relevant University
	4. Number of citations per faculty member	WoS and YÖK-SİS
	5. Number of national awards per faculty member	Relevant University
	6. Number of completed or ongoing projects supported by official national organs per faculty member	Relevant University
	7. Number of projects supported by official international organs and professional associations and international NGOs	Relevant University
	8. Number of joint projects conducted with other domestic institutions of higher education per faculty member	Relevant University
	9. Number of joint projects conducted with foreign institutions of higher education per faculty member	Relevant University
Curricular Efficiency	**1.** Number of degree-granting programs	YÖK-SİS
	2. Number of programs applying qualifications frameworks	YÖK-SİS
	3. Number of accredited programs	YÖK-SİS
	4. Student-teacher ratio	ÖSYM and YÖK
	5. Rate of graduation within normal time	Relevant University
	6. Ratio of graduate students to total students	YÖK-SİS
	7. Number of programs applying quality assurance	YÖK-SİS
International Connections	**1.** Number of active international research centers	Relevant University
	2. Number of active international partnerships and collaborations	Relevant University
	3. Number of joint international studies/projects	Relevant University
	4. Ratio of international faculty visiting for teaching purposes for at least one semester to total faculty	YÖK-SİS
	5. Number of international joint and/or double degree programs	YÖK-SİS
	6. Ratio of arriving international students (apart from reasons of mobility) to total students	Relevant University
	7. Ratio of arriving students benefiting from international mobility	Relevant University
Student Support	**1.** Rate of international students graduating within normal time	Relevant University
	2. Presence of Turkish teaching programs	Relevant University
	3. Number of international scholarship students (rate of 50% or more as compared to total scholarship students)	Relevant University
	4. Number of countries making up the international student profile	Relevant University
	5. Number of staff members employed in the international office	Relevant University
	6. Database of the national and international student center	Relevant University
Urban Sufficiency	**1.** Urban residents' attitude toward international students	Survey
	2. Index of socioeconomic development	Ministry of Development
	3. International students' attitude toward the city	Survey
	4. National students' attitude toward the city	Survey

Ranking Indicators and Weights

University Research Performance Indicator

The basic indicator of research performance expresses a university's already existing scholarly productivity, and is made up of the following nine subindicators: (*i*) number of papers per faculty member, (*ii*) number of citations per faculty member, (*iii*) number of international awards per faculty member, (*iv*) number of presentations at international academic events per faculty member, (*v*) number of national awards per faculty member, (*vi*) number of completed or ongoing projects supported by official national organs (e.g., the Ministry of Development, the Scientific and Technological Research Council of Turkey, the SAN-TEZ program, or BOREN) per faculty member, (*vii*) number of projects supported by official international organs and professional associations and international NGOs (e.g. the European Union, the United Nations, or UNICEF) per faculty member, (*viii*) number of joint projects conducted with other domestic institutions of higher education per faculty member, and (*ix*) number of joint projects conducted with foreign institutions of higher education per faculty member. Explanations for each of these are provided below.

Number of Papers Per Faculty Member

This indicator aims to evaluate the research output of universities. For this indicator, the data includes papers, notes, and reviews published in journals indexed by the Web of Science (WoS) and are obtained from the WoS database. The data encompass the past year, and unfair advantage for large universities is avoided because the total number of papers in this indicator is divided up among the number of faculty members.

Number of international awards per faculty member

This indicator aims to evaluate the research awards output of universities. For this indicator, the data are obtained from the relevant university. The data encompass the past year, and unfair advantage for large universities is avoided because the total number of international awards in this indicator is divided up among the number of faculty members.

Number of presentations at international academic events per faculty member

This indicator aims to evaluate the research output of universities. For this indicator, the data are obtained from the relevant university. The data encompass the past year, and unfair advantage for large universities is avoided because the total number of participations at international events in this indicator is divided up among the number of faculty members.

Number of citations per faculty member

This indicator aims to evaluate the sustainability of the quality of universities' scholarly productivity. A cited work means a part of another, citing work. As such, in general, impactful works are utilized as part of another work, with the authors of the latter citing the former. As a result, higher education publications that receive a high number of citations are evaluated as the output of strong research. For this indicator, the data are obtained from the WoS database. The data encompass the past five years, and unfair advantage for large universities is avoided because the total number of citations in this indicator is divided up among the number of faculty members.

Number of national awards per faculty member

This indicator aims to evaluate the research awards output of universities. For this indicator, the data are obtained from the relevant university. The data encompass the past year, and unfair advantage for large universities is avoided because the total number of national awards in this indicator is divided up among the number of faculty members.

Number of completed or ongoing projects supported by official national organs per faculty member

This indicator aims to evaluate the research projects output of universities. For this indicator, the data are obtained from the relevant university. The data encompass the past year, and unfair advantage for large universities is avoided because the total number of completed or ongoing projects

supported by official national organs in this indicator is divided up among the number of faculty members.

Number of projects supported by official international organs and professional associations and international NGOs

This indicator aims to evaluate the research projects output of universities. For this indicator, the data are obtained from the relevant university. The data encompass the past year, and unfair advantage for large universities is avoided because the total number of projects supported by official international organs and professional associations and international NGOs in this indicator is divided up among the number of faculty members.

Number of joint projects conducted with other domestic institutions of higher education per faculty member

This indicator aims to evaluate the research projects output of universities. For this indicator, the data are obtained from the relevant university. The data encompass the past year, and unfair advantage for large universities is avoided because the total number of joint projects conducted with other domestic institutions of higher education in this indicator is divided up among the number of faculty members.

Number of joint projects conducted with foreign institutions of higher education per faculty member

This indicator aims to evaluate the research projects output of universities. For this indicator, the data are obtained from the relevant university. The data encompass the past year, and unfair advantage for large universities is avoided because the total number of joint projects conducted with foreign institutions of higher education in this indicator is divided up among the number of faculty members.

Curricular Efficiency Indicator

The basic indicator of curricular efficiency expresses a university's already existing quality of education, and is made up of the following seven subindicators: (*i*) number of degree-granting programs, (*ii*) number of programs applying qualifications frameworks, (*iii*) number of accredited programs, (*iv*) student-teacher ratio, (*v*) rate of graduation within normal time, (*vi*) ratio of graduate students to total students, and (*vii*) number of programs applying quality assurance. Explanations for each of these are provided below.

Number of degree-granting programs

This indicator aims to evaluate the degree-granting programs in which universities provide education. For this indicator, data are obtained from the database (YÖK-SİS) of the Council of Higher Education (*Yükseköğretim Kurulu*). The data encompass the past year.

Number of programs applying qualifications frameworks

This indicator aims to evaluate the active programs in which universities provide education from the standpoint of qualifications frameworks. For this indicator, data are obtained from the database (YÖK-SİS) of the Council of Higher Education and from the relevant university. The data encompass the past year. This indicator is expressed as a ratio of the university's programs applying qualifications frameworks to its number of active programs.

Number of accredited programs

This indicator aims to evaluate the programs in which universities provide education from the standpoint of accreditation. For this indicator, data are obtained from the database (YÖK-SİS) of the Council of Higher Education and from the relevant university. The data encompass the past year. This indicator is expressed as a ratio of the university's accredited programs to its number of degree-granting programs.

Student-teacher ratio

This indicator aims to evaluate universities' quality of education in terms of its faculty. For this indicator, data are obtained from the database (YÖK-SİS) of the Council of Higher Education. The data encompass the past year. This indicator is expressed as a ratio of registered students to the number of academic staff employed. Ideas regarding the quality of instruction are provided by small classes and by faculty able to take greater interest in and provide consultation to students.

Rate of graduation within normal time

This indicator aims to evaluate universities' quality of education in terms of student success and attendance. For this indicator, data are obtained from the database (YÖK-SİS) of the Council of Higher Education and from the relevant university. The data encompass the past year. This indicator is expressed as a ratio, for the relevant year, of the total number of students graduating within the normal period of study to the total number of students (students graduating within normal period of study + students not graduating).

Ratio of graduate students to total students

This indicator aims to evaluate universities' quality of education in terms of high-level research and academics. For this indicator, data are obtained from the database (YÖK-SİS) of the Council of Higher Education. The data encompass the past year. This indicator is expressed as a ratio of the number of a university's graduate students to the number of its registered students.

Number of programs applying quality assurance

This indicator aims to evaluate the active programs in which universities provide education from the standpoint of quality assurance. For this indicator, data are obtained from the database (YÖK-SİS) of the Council of Higher Education and from the relevant university. The data encompass the past year. This indicator is expressed as a ratio of the university's programs with quality assurance to its number of degree-granting programs.

International Linkages Indicator

The basic indicator of international linkages expresses a university's already existing quality of education, and is made up of the following seven subindicators: (*i*) number of active international research centers, (*ii*) number of active international partnerships and collaborations, (*iii*) number of joint international studies/projects, (*iv*) ratio of international faculty visiting for teaching purposes for at least one semester to total faculty, (*v*) number of international joint and/or double degree programs, (*vi*) ratio of arriving international students (apart from reasons of mobility) to total students, and (*vii*) ratio of arriving students benefiting from international mobility. Explanations for each of these are provided below.

Number of Active International Research Centers

This indicator aims to evaluate universities' active international research units. For this indicator, data are obtained from the relevant university. The data encompass the past year.

Number of Active International Partnerships And Collaborations

This indicator aims to evaluate universities' international cooperation. For this indicator, data are obtained from the relevant university. The data encompass the past year.

Number of Results of Joint International Studies/Projects

This indicator aims to evaluate universities' research output resulting from work with an international partner. For this indicator, data are obtained from the relevant university. The data encompass the past year, and unfair advantage for large universities is avoided because the total number of citations in this indicator is divided up among the number of faculty members.

Ratio of International Faculty Visiting for Teaching Purposes for At Least One Semester to Total Faculty

This indicator aims to evaluate the level of international faculty members' preference for the university. For this indicator, data are obtained from the database (YÖK-SİS) of the Council of Higher Education. The data encompass the past year, and unfair advantage for large universities is avoided because the international faculty visiting for teaching purposes for at least one semester in this indicator are divided up among the total number of faculty members.

Number of International Joint and/or Double Degree Programs

This indicator aims to evaluate universities' joint and double degrees. For this indicator, data are obtained from the database (YÖK-SİS) of the Council of Higher Education and from the relevant university. The data encompass the past year. This indicator is expressed as a ratio of international joint and/or double degree-granting programs to the number of degree-granting programs.

Ratio of Arriving International Students (Apart From Reasons of Mobility) to Total Students

This indicator aims to evaluate the level of international (apart from reasons of mobility) students' preference for the university. For this indicator, data are obtained from the the relevant university. The data encompass the past year, and unfair advantage for large universities is avoided because the arriving international (apart from reasons of mobility) students in this indicator is divided up among the total number of students.

Ratio of Arriving Students Benefiting from International Mobility

This indicator aims to evaluate the students benefiting from international mobility. For this indicator, data are obtained from the the relevant university. The data encompass the past year, and unfair advantage for large universities is avoided because the number of arriving students benefiting from international mobility in this indicator is divided up among the total number of students.

Student Support Indicator

The basic indicator of student support expresses a university's already existing quality of education, and is made up of the following six subindicators: (*i*) rate of international students graduating within normal time, (*ii*) presence of Turkish teaching programs, (*iii*) number of international scholarship students, (*iv*) number of countries making up the international student profile, (*v*) number of staff members employed in the international office, and (*vi*) database of the national and international student center. Explanations for each of these are provided below.

Rate of İnternational Students Graduating Within Normal Time

This indicator aims to evaluate universities' quality of education in terms of international student success and attendance. For this indicator, data are obtained from the database (YÖK-SİS) of the Council of Higher Education and from the relevant university. The data encompass the past year. This indicator is expressed as a ratio, for the relevant year, of the total number of international students graduating within the normal period of study to the total number of international students (students graduating within normal period of study + students not graduating).

Presence of Turkish Teaching Programs

This indicator aims to evaluate the Turkish language teaching offered to international students. For this indicator, data are obtained from the relevant university. The data encompass the past year. This indicator expresses the number of academic staff working in the university's Turkish teaching center (or similar institution).

Number of International Scholarship Students

This indicator aims to evaluate the scholarships granted to international students. For this indicator, data are obtained from the relevant university. The data encompass the past year.

Number of Countries Making Up the International Student Profile

This indicator aims to evaluate international students in terms of their countries of origin. For this indicator, data are obtained from the relevant university. The data encompass the past year.

Number of Staff Members Employed in the International Office

This indicator aims to evaluate the services offered to international students. For this indicator, data are obtained from the relevant university. The data encompass the past year. This indicator is expressed as a ratio of the number of university administrative staff working in the international office to the total number of university administrative staff.

Database of the National and International Student Center

This indicator aims to evaluate the university's student center database. For this indicator, data are obtained from the relevant university. The data encompass the past year.

Urban Sufficiency Indicator

This basic indicator expresses the suffiency of the urban location of the university and is made up of the following four subindicators: (*i*) urban residents' attitude toward international (foreign) students, (*ii*) index of socioeconomic development, (*iii*) international (foreign) students' attitude toward the city, and (*iv*) national (Turkish) students' attitude toward the city. Explanations for each of these are provided below.

Urban Residents' Attitude toward International Students

This indicator aims to evaluate the attitude of the residents of the city where the university is located toward international students. For this indicator, the data are obtained through a survey made up of ten items. The data used are collected over a period of three years. In order to prevent bias on the surveys, they should be administered by an independent organization to urban residents chosen at random and taking into account the relevant city's population.

Index of Socioeconomic Development

This indicator aims to evaluate the socioeconomic development of the city where the university is located. For this indicator, the data are obtained from the Ministry of Development's most recent index of socioeconomic development. This data does not include the ranking of the relevant city's socioeconomic development, but rather its socioeconomic development index (SEDI) value. The socioeconomic development index takes into consideration the economic weight of the city within its country, the level of social development, the level of individual wealth and prosperity, the equilibrium between economic and social development on a city-wide scale and individual prosperity, and continuity as regards data collection.

International Students' Attitude toward The City

This indicator aims to evaluate the attitude of international students toward the city where the university is located. For this indicator, the data are obtained through a survey made up of 32 items. The data used are collected over a period of three years. In order to prevent bias on the surveys, they should be administered by an independent organization to randomly chosen international students studying in the city and taking into account the student population of the relevant city.

National Students' Attitude toward The City

This indicator aims to evaluate the attitude of national students toward the city where the university is located. For this indicator, the data are obtained through a survey made up of 33 items. The data used are collected over a period of three years. In order to prevent bias on the surveys, they should be administered by an independent organization to randomly chosen national students studying in the city and taking into account the student population of the relevant city.

Scoring

Owing to the unexpected fact that the indicators used in the sorting show a normal distribution, the scores are calculated linearly following their division into those below the median value of the raw data for the universities and those above. The weights of the subindicators within the main indicators, as determined according to the Delphi method and the scaling system, are presented in Table 8.

Table 8. Indicators and Weight Percentages

Indicator	Subindicator	Weight Percentage
University Research Performance	**1.** Number of papers per faculty member	30
	2. Number of international awards per faculty member	10
	3. Number of presentations at international academic events per faculty member	10
	4. Number of citations per faculty member	5
	5. Number of national awards per faculty member	10
	6. Number of completed or ongoing projects supported by official national organs per faculty member	10
	7. Number of projects supported by official international organs and professional associations and international NGOs	10
	8. Number of joint projects conducted with other domestic institutions of higher education per faculty member	5
	9. Number of joint projects conducted with foreign institutions of higher education per faculty member	10
Curricular Efficiency	**1.** Number of degree-granting programs	10
	2. Number of programs applying qualifications frameworks	20
	3. Number of accredited programs	20
	4. Student-teacher ratio	10
	5. Rate of graduation within normal time	10
	6. Ratio of graduate students to total students	10
	7. Number of programs applying quality assurance	20
International Connections	**1.** Number of active international research centers	15
	2. Number of active international partnerships and collaborations	15
	3. Number of joint international studies/projects	15
	4. Ratio of international faculty visiting for teaching purposes for at least one semester to total faculty	20
	5. Number of international joint and/or double degree programs	15
	6. Ratio of arriving international students (apart from reasons of mobility) to total students	10
	7. Ratio of arriving students benefiting from international mobility	10
Student Support	**1.** Rate of international students graduating within normal time	15
	2. Presence of Turkish teaching programs	20
	3. Number of international scholarship students (rate of 50% or more as compared to total scholarship students)	20
	4. Number of countries making up the international student profile	15
	5. Number of staff members employed in the international office	20
	6. Database of the national and international student center	10
Urban Sufficiency	**1.** Urban residents' attitude toward international students	10
	2. Index of socioeconomic development	30
	3. International students' attitude toward the city	35
	4. National students' attitude toward the city	25

In the evaluation, the raw values calculated for the university for each of the 33 subindicators indicated above are converted into scores on a scale of 100, keeping in mind the statistical distribution of each of the subindicators. During the calculation of the scores, the subindicators were treated as two separate groups: those independent of the basic indicator (e.g., number of programs, socioeconomic development index) and those dependent on the basic indicator (e.g., number of citations per faculty member, ratio of international students). For those independent of the basic indicator, those universities at a distance of between 3 and 1.5 times the interval quartering the raw value from the median value are considered anomalous. After these universities had been given scores of 100 and 99, the 98–0 score interval of the remaining universities is distributed linearly according to the ratio of the raw value that they received from that subindicator. For those subindicators dependent on the basic indicator, logarithmic transformation is applied to the raw data and the 100–0 score interval is distributed to the universities according to these values' squared ratio. Then, the score of the 33 subindicators, calculated according to a score of 100 for each, are calculated on the basis of a score of 100 for each basic indicator within the scope of the weight percentages shown in Table 8.

In conclusion, in the index ranking, from the calculation of separate scores for the five (5) basic indicators, the subindicator scores for the five basic indicators are added up and converted into a single score based on a score of 500. The resulting ranking can also be performed in the context of the universities' different departments.

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