

UNIVERSITIES UNDER THE MAGNIFYING GLASS OF GLOBAL UNIVERSITY RANKINGS: THE PERFORMANCE OF ENTREPRENEURSHIP EDUCATION.

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Abstract

The EU and public entities have shown a keen interest in promoting Entrepreneurship Education in universities through policy initiatives and regulations. This study aims to examine the extent to which Entrepreneurship is incorporated into the ranking methodologies of Higher Education Institutions (Universities). Consequently, the research question posed is: How do the indicators employed by global rankings capture the performance of universities in Entrepreneurship Education? Utilizing data from the International Ranking Expert Group Observatory, this study selects Global University Rankings categories, which encompass a total of 30 rankings as the sample. Our findings reveal that while the European Commission strive to create a public framework that supports entrepreneurship education, the sampled international rankings do not consider entrepreneurship as a criterion to evaluate university performance.

Keywords: *Entrepreneurship, Global University rankings, Entrepreneurial universities.*

1. Introduction

The global higher education landscape has experienced significant transformations in recent years, with an increasing emphasis on innovation and entrepreneurship as key drivers of economic growth and social impact. Entrepreneurship education has emerged as a critical component in the curriculum of universities worldwide, as they seek to foster an entrepreneurial mindset and skill set among their students. This paper explores the performance of entrepreneurship education within the context of global university rankings, shedding light on the evaluation criteria used by these rankings and their implications for universities' entrepreneurship education programs.

The importance of this matter stems from the growing influence of global university rankings on universities' strategic decision-making, reputation, and funding opportunities. These rankings not only affect students and faculty but also have broader implications for policymakers, employers, and society at large. As such, understanding the performance of entrepreneurship education within the context of these rankings is crucial for universities aiming to enhance their programs, as well as for stakeholders seeking to identify the most effective entrepreneurship education practices.

To address this matter, the paper will conduct a comprehensive analysis of leading global university rankings, such as the Times Higher Education World University Rankings, QS World University Rankings, and the Academic Ranking of World Universities (ARWU). The analysis will focus on the evaluation criteria and indicators used by these rankings to measure entrepreneurship education performance. Additionally, the paper will explore the relationship between these evaluation criteria.

This research contributes to the existing specialized literature by examining the intersection between entrepreneurship education and global university rankings, an area that has received limited attention so far. While previous studies have explored the general impact of university rankings on higher education institutions and their decision-making processes, this paper offers a more focused analysis on entrepreneurship education, providing valuable insights into the potential gaps and limitations of current ranking methodologies in evaluating this critical aspect of higher education. Ultimately, the findings of this paper will contribute to a deeper understanding of the role of global university rankings in shaping entrepreneurship education and will serve as a foundation for future research.

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2. Paper content

The role of education in fostering societal growth and transformation has become the mission of various international organizations, such as the World Bank, the United Nations, and the United Nations Educational, Scientific, and Cultural Organization (UNESCO). These organizations have sparked interest in promoting and generating actions to address the educational challenges faced by new generations. For instance, on September 25, 2015, the 193 Member States of the United Nations assumed seventeen challenges called the Sustainable Development Goals (SDGs) within the framework of the 2030 agenda; the fourth challenge is titled "Quality Education." Within this transformative role of education, we focus on entrepreneurship, understanding that Entrepreneurship Education (EE) is transformative because it calls for constant movement, identifying opportunities, taking action, executing, and repeating good practices learned throughout the process¹.

Entrepreneurship has been inherent in societal development and has evolved alongside academia over the last 50 years, securing its place in education². As such, EE is defined as an educational approach that enables the development of an entrepreneurial mindset in students and growth encompassing various aspects of academic training, such as intellectual, social, and moral, ensuring that it is not limited to just economic and employment dimensions³. The beginnings of EE date back to 1947 at Harvard University, which offered courses on entrepreneurship in 1947⁴; however, it gained significant traction in business schools in the early 1970s⁵. Throughout the 20th century, considerable efforts were made, resulting in more than 800 EE programs in the United States by the end of the century. In the last 30 years, entrepreneurship training programs have experienced tremendous growth, challenging how they are created and sustained over time⁶.

Promoting entrepreneurial behavior among students has become a challenge not only for universities but also for businesses and public agents that share this philosophy and wish to promote entrepreneurship as a teaching discipline⁷. It is evident that there is a consensus among international organizations, governments, academic institutions, and the private sector on the importance of fostering an entrepreneurial spirit through effective entrepreneurship education⁸. Academic institutions have developed a wide range of programs to address the growing gap between entrepreneurial action and Entrepreneurship Education (EE) in today's society⁹. Therefore, it is crucial to encourage entrepreneurship from the earliest levels of education, awakening students' interest in the factors that make up an entrepreneurial culture.

In the case of higher education institutions (HEIs), it is necessary to strengthen instruction in methods, techniques, models, and strategies used in the business realities of various economic sectors, thereby promoting attitudes, skills, and abilities that contribute knowledge in a cross-cutting and interdisciplinary manner from EE¹⁰. Previous scientific publications assert that there are more than 3,000 schools worldwide promoting EE¹¹. This is possible thanks to the reach of public, private, and research sector entrepreneurship programs, identifying EE as a transformative engine in academia for economic growth, employment, resource generation, and poverty reduction in a society¹². It is this transformative capacity that is promoted by universities through various efforts to promote EE, fostering entrepreneurial competitiveness in each economic sector and providing sustainable growth in society. In this regard, the literature identifies the efforts of various academic institutions to promote an entrepreneurial university environment, increasing their development of strategies for implementing best

¹ R.J. White, *See Do Repeat: The Practice of Entrepreneurship*, Place of publication not identified: NOW SC Press.

² A. Fayolle, J.-M. Degeorge, *Attitudes, intentions, and behaviour: new approaches to evaluating entrepreneurship education*, International Entrepreneurship Education: Issues and Newness.

³ A. Hussain, D. Norashidah, *Impact of Entrepreneurial Education on Entrepreneurial Intentions of Pakistani Students*, Journal of Entrepreneurship and Business Innovation, 2(1), p. 43. <https://doi.org/10.5296/jebi.v2i1.7534>.

⁴ D.F. Kuratko, *The emergence of entrepreneurship education: Development, trends, and challenges*, Entrepreneurship: Theory and Practice, 29(5), pp. 577-598. <https://doi.org/10.1111/j.1540-6520.2005.00099.x>.

⁵ D.F. Kuratko, M.H. Morris, *Examining the Future Trajectory of Entrepreneurship*, Journal of Small Business Management, 56(1), pp. 11-23. <https://doi.org/10.1111/jsbm.12364>.

⁶ M.H. Morris, J.W. Webb, J. Fu, S. Singhal, *A competency-based perspective on entrepreneurship education: conceptual and empirical insights*, Journal of small business management, 51(3), pp. 352-369.

⁷ A. Ibáñez, I. Fernández, A. Iglesias, O. Marigil, P. San Sebastián, *La emoción de emprender desde la universidad: la universidad como vivero de personas emprendedoras*.

⁸ G. Von Graevenitz, D. Harhoff, R. Weber, *The effects of entrepreneurship education*, Journal of Economic behavior & organization, 76(1), pp. 90-112.

⁹ G. Boldureanu, A.M. Ionescu, A.M. Bercu, M.V. Bedrule-Grigoruță, D. Boldureanu, *Entrepreneurship education through successful entrepreneurial models in higher education institutions*, Sustainability, 12(3), p. 1267.

¹⁰ A. Cavallo, A. Ghezzi, R. Balocco, *Entrepreneurial ecosystem research: Present debates and future directions*, International Entrepreneurship and Management Journal, pp. 1-31.

¹¹ D.F. Kuratko, *Corporate entrepreneurship 2.0: research development and future directions*, Foundations and Trends® in Entrepreneurship, 13(6), pp. 441-490.

¹² H.M. Neck, P.G. Greene, *Entrepreneurship education: known worlds and new frontiers*, Journal of small business management, 49(1), pp. 55-70.

practices^{13, 14, 15, 16, 17, 18, 19, 20, 21}. Audretsch (2014)²² claims that the role of the university has evolved into an "entrepreneurial university" as a response to technology transfer and knowledge-based new ventures; thus, the university's role in the entrepreneurial society has expanded to focus on enhancing entrepreneurial capital. In line with this, Fernández-Nogueira et al., (2018)²³ evaluate seven Spanish universities, finding in some cases the use of active methodologies for fostering entrepreneurial universities, concluding in their research a set of best practices that an entrepreneurial university should consider in its management process.

Considering the above, universities are constantly being taken as case studies by various academics seeking to understand the realities of entrepreneurship in HEIs. Both public and private universities are governed within each country's regulatory framework, being monitored and supervised by governments, ministries, or established quality agencies according to their laws or quality standards. Additionally, there are multiple independent non-governmental international organizations that assess university performance. Robinson-García et al. (2013)²⁴ identified seven main international rankings: Shanghai Ranking's Academic, The Times Higher Education-THE, QS World University Rankings, NTU rankings, CWTS Leiden Ranking, Scimago Institution Rankings, and universities Ranking web. Also, Morris et al. (2013)²⁵, in their book titled *Entrepreneurship Programs and the Modern University*, identify four rankings with rubrics that measure the EE inside school of business, such as Princeton Review, Financial Times, Business Week, and U.S. News & World Report. These indices have been updated, expanded, and completed with others, resulting in a wide variety of ranking lists today. The relevance of addressing these international rankings and their contributions is supported by the approach of the European Commission²⁶, identifying the need for entrepreneurial HEIs to understand the impact of the changes they provoke in their institutional environment and society. In line with this, the concept of an entrepreneurial-innovative HEI combines institutional self-perception, external reflection, and an evidence-based approach. However, as the Commission points out, the measurement of their impact remains underdeveloped.

Scientific publications as shown the importance of EE in the last two decades. Thus, the bibliometric methodology has experienced a surge in publications aiming to understand the bibliographic evolution of EE in

¹³ G. Secundo, M.E.L.E. Gioconda, P. Del Vecchio, E.L.I.A. Gianluca, A. Margherita, N.D.O.U. Valentina, *Threat or opportunity? A case study of digital-enabled redesign of entrepreneurship education in the COVID-19 emergency*, Technological forecasting and social change, 166, 120565.

¹⁴ V. Ratten, P. Usmanij, *Entrepreneurship education: Time for a change in research direction?* In *The International Journal of Management Education*, 19(1), 100367.

¹⁵ R. Trivedi, *Does university play significant role in shaping entrepreneurial intention? A cross-country comparative analysis*, *Journal of Small Business and Enterprise Development*, 23(3), pp. 790-811.

¹⁶ J. Bronstein, M. Reihlen, *Entrepreneurial university archetypes: A meta-synthesis of case study literature*, *Industry and Higher Education*, 28(4), pp. 245-262.

¹⁷ D.A. Kirby, M. Guerrero, D. Urbano, *Making universities more entrepreneurial: Development of a model*, *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*, 28(3), pp. 302-316.

¹⁸ H. Oosterbeek, M. Van Praag, A. Ijsselstein, *The impact of entrepreneurship education on entrepreneurship skills and motivation*, *European economic review*, 54(3), pp. 442-454.

¹⁹ D. Kirby, *Changing the entrepreneurship education paradigm*, *Handbook of research in entrepreneurship education*, 1, pp. 21-45.

²⁰ M.C. Brennan, A.P. Wall, P. McGowan, *Academic entrepreneurship: Assessing preferences in nascent entrepreneurs*, *Journal of Small Business and Enterprise Development*, 12(3), pp. 307-322.

²¹ M. Jacob, M. Lundqvist, H. Hellsmark, *Entrepreneurial transformations in the Swedish University system: the case of Chalmers University of Technology*, *Research policy*, 32(9), pp. 1555-1568.

²² D.B. Audretsch, *From the entrepreneurial university to the university for the entrepreneurial society*, *Journal of Technology Transfer*, Vol. 39 No. 3, pp. 313-321.

²³ D. Fernández-Nogueira, A. Arruti, L. Markuerkiaga, N. Saenz, *The entrepreneurial university: A selection of good practices*, *Journal of Entrepreneurship Education*, 21(3), pp. 1-17.

²⁴ N. Robinson-García, D. Torres-Salinas, E. Delgado López-Cózar, L. Herrera, *An insight into the importance of national university rankings in an international context: the case of the I-UGR rankings of Spanish universities*, *Scientometrics*, 101, pp. 1309-1324.

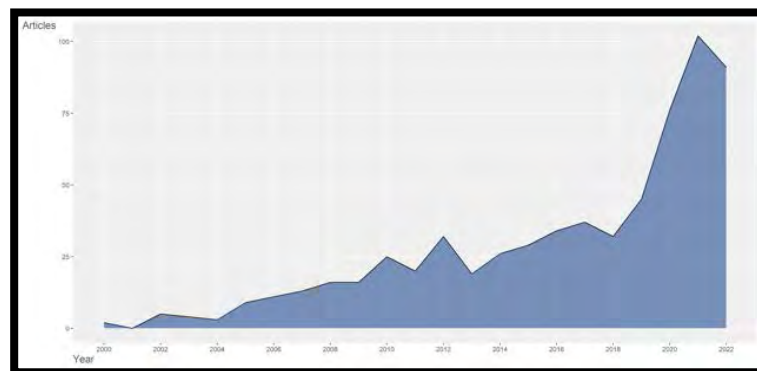
²⁵ M.H. Morris, J.W. Webb, J. Fu, S. Singhal, *A competency-based perspective on entrepreneurship education: conceptual and empirical insights*, *Journal of small business management*, 51(3), pp. 352-369.

²⁶ European Commission and OCED, (2018a), *The entrepreneurial and innovative higher education institution a review of the concept and its relevance today* Updated version – June 2018. Concept Note. Heinnovate.

the last five years^{27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37}. Aparicio et al. (2019)³⁸, academics from the University of the Basque Country (UPV), used the Web of Sciences (WOS) database and analysed 365 articles in scientific journals published from 1987 to 2017. In general, they found that entrepreneurship research has evolved from academia as a strategic part of economic development in society and the education sector. Additionally, the research topics of the publications showed that students, rather than professors, have become the main agents of the educational process. Similarly, the most recent bibliometric review in EE studied 680 documents from the WOS³⁹, and these authors assert that research in EE has become broad, complex, and fragmented, making it increasingly difficult to examine. However, in their analysis, they found a set of citations that reveal two exploration groups, one focusing on psychological constructs related to EE and the other on entrepreneurial behavior and new venture creation. A significant finding is that existing research focuses on the outcomes of entrepreneurial education, while its pedagogy remains primarily uncertain.

In a search in Scopus, an exhaustive review of 1,139 articles was conducted, of which only publications under the areas concerning: *Entrepreneurship, Entrepreneurship Education, Education, Higher Education, Students, Entrepreneurial Intention, Innovation, Entrepreneur, University, Entrepreneurial Education, Universities, Academic Entrepreneurship, Entrepreneurial University, Entrepreneurial Intentions, Entrepreneurialism, Learning, Student, Social Entrepreneurship, Experiential Learning, University Entrepreneurship, Theory Of Planned Behaviour, Entrepreneurial Learning, Entrepreneurship Programs, Innovation And Entrepreneurship Education, Student Entrepreneurship, and E-learning* were considered. Thus, a total of 647 articles met the thematic search requirements to identify publications in the last two decades. The following presents the proliferation of entrepreneurship as a science that universities and academics are gradually taking as an essential part of their academic training plans.

Illustration 1. Annual scientific production and average citations per year of Entrepreneurship Education



²⁷ G. Aparicio, T. Iturralde, A. Maseda, *Conceptual structure and perspectives on entrepreneurship education research: A bibliometric review*, *European Research on Management and Business Economics*, 25(3), pp. 105-113. <https://doi.org/10.1016/j.iideen.2019.04.003>.

²⁸ F. Arici, P. Yildirim, Ş. Caliklar, R.M. Yilmaz, *Research trends in the use of augmented reality in science education: Content and bibliometric mapping analysis*, *Computers and Education*, p. 142. <https://doi.org/10.1016/j.compedu.2019.103647>.

²⁹ X. Chen, D. Zou, X. Xie, F.L. Wang, *Past, present, and future of smart learning: a topic-based bibliometric analysis*, *International Journal of Educational Technology in Higher Education*, 18(1). <https://doi.org/10.1186/s41239-020-00239-6>.

³⁰ P. Hallinger, R. Wang, *Analyzing the intellectual structure of research on simulation-based learning in management education, 1960–2019: A bibliometric review*, *International Journal of Management Education*, 18(3). <https://doi.org/10.1016/j.ijme.2020.100418>.

³¹ T. Hao, X. Chen, Y. Song, *A Topic-Based Bibliometric Analysis of Two Decades of Research on the Application of Technology in Classroom Dialogue*, *Journal of Educational Computing Research*, 58(7), pp. 1311-1341. <https://doi.org/10.1177/0735633120940956>.

³² C. Huang, C. Yang, S. Wang, W. Wu, J. Su, C. Liang, *Evolution of topics in education research: a systematic review using bibliometric analysis*, *Educational Review*, 72(3), pp. 281-297. <https://doi.org/10.1080/00131911.2019.1566212>.

³³ L. Ivanović, Y.-S. Ho, *Highly cited articles in the Education and Educational Research category in the Social Science Citation Index: a bibliometric analysis*, *Educational Review*, 71(3), pp. 277-286. <https://doi.org/10.1080/00131911.2017.1415297>.

³⁴ J. Kovačević, P. Hallinger, *Leading school change and improvement: A bibliometric analysis of the knowledge base (1960–2017)*, *Journal of Educational Administration*, 57(6), pp. 635-657. <https://doi.org/10.1108/JEA-02-2019-0018>.

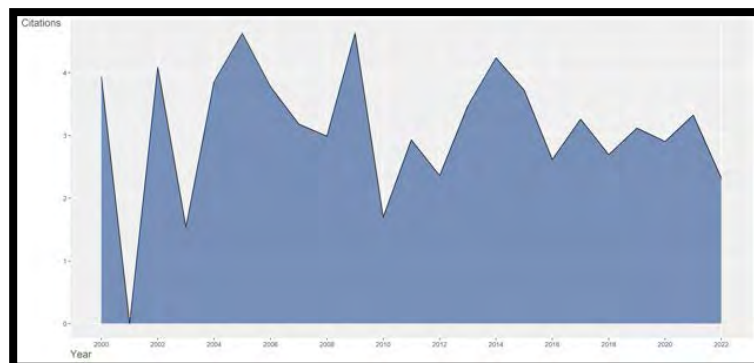
³⁵ A. Kuzhabekova, *Charting the terrain of global research on graduate education: a bibliometric approach*, *Journal of Further and Higher Education*, 46(1), pp. 20-32. <https://doi.org/10.1080/0309877X.2021.1876219>.

³⁶ J. Li, P.D. Antonenko, J. Wang, *Trends and issues in multimedia learning research in 1996–2016: A bibliometric analysis*, *Educational Research Review*, p. 28. <https://doi.org/10.1016/j.edurev.2019.100282>.

³⁷ V. Tiberius, M. Weyland, *Entrepreneurship education or entrepreneurship education? A bibliometric analysis*, *Journal of Further and Higher Education*, 47(1), pp. 134-149. <https://doi.org/10.1080/0309877X.2022.2100692>.

³⁸ G. Aparicio, T. Iturralde, A. Maseda, *Conceptual structure and perspectives on entrepreneurship education research: A bibliometric review*, *European Research on Management and Business Economics*, 25(3), pp. 105-113. <https://doi.org/10.1016/j.iideen.2019.04.003>.

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Source: Own elaboration using Bibliometrix R-Package

It is clear that there has been interest in researching, writing, and publishing about EE since the beginning of the 21st century, and as a result, the annual scientific production on the topic has been increasing. Illustration 1 shows the exponential growth of publications in indexed journals about entrepreneurship at the university level. This highlights the rise of academic entrepreneurship within higher education institutions, emphasizing its study, development, implementation, and improvement over the years. Likewise, the second graph shows the average number of citations, with greater interest and citations in certain years, such as in 2005 and 2009.

One of the functions of the university is the development of entrepreneurship in its triple dimension of training, research, and transfer. In fact, it is considered one of its key contributions to society due to its transformative nature and promotion of cohesion and social justice. With this in mind, this dimension must be measured and evaluated just as other university dimensions such as teaching or research are. Along with the measurements that each university can carry out at an internal level, it is essential that it is also evaluated by external agents in university rankings, as they promote transparency and comparability. In this way, the dimension of promoting entrepreneurship would help determine the excellence of university centers.

The IREG Observatory has a list of 46 rankings, categorized as follows: Global University Ranking, Global University Sub-rankings, Global Ranking by Subject, Regional University Ranking, Business School Ranking, and Higher Education System Rankings. To answer the research question posed, an exhaustive review has been carried out only on the methodologies determined by each organization in one category, which is: Global University Ranking taken from the IREG Observatory.

The Global University Ranking category comprises 18 rankings belonging to 16 organizations that annually present the results of their measurements (See Table 1). The first entity to present a global university ranking was the Shanghai Ranking Consultancy in 2003; its methodology identifies 4 criteria (education quality 10%, faculty quality 40%, research outcomes 40%, and per capita performance 10%). Thus, in 2004, four organizations decided to follow the path marked by Shanghai Ranking Consultancy the previous year. These were Quacquarelli Symonds Ltd (QS), Institute of Public Policies and Goods, Higher Council of Scientific Research, and Times Higher Education. We have carried out a comparative study of the methodology of these rankings, and the result of this measurement shows us different criteria and indicators that evaluate the faculty, students, and graduates. There is a significant coincidence in research-related indicators, such as patents, the number of publications in prestigious journals, and citations. However, there is no unanimity in the evaluation of EE; in fact, of the 30 rankings examined from the IREG Observatory, none present any consideration of EE. Some issues that are tangentially related to entrepreneurship could be: networking with other universities and business schools, patents, and spin-offs. Next, Table 1 presents a consolidated overview of four ranges used to systematize the data on these rankings: organization, ranking name, year of the first edition, and entrepreneurship criterion.

Table 1. Global University Ranking

Organization	Ranking Name	First Edition	Entrepreneurship Criterion
Centre for Science and Technology Studies, Leiden University	CWTS Leiden Ranking www.leidenranking.com	2008	No
The Center for World University Rankings (CWUR)	CWUR World University Rankings www.cwur.org	2012	No

Macmillan Publishers Limited (part of Springer Nature Group)	Nature Index https://www.natureindex.com/annual-tables/2020	2014	No
Department of Library and Information Science, National Taiwan University	NTU Ranking - National Taiwan University Performance Ranking of Scientific Papers for World Universities http://nturanking.csti.tw/	2007	No
Quacquarelli Symonds Ltd (QS)	QS World University Rankings https://www.topuniversities.com/qs-world-university-rankings	2004	No
Reuters News	Reuters Top 100: The World's Most Innovative Universities https://www.reuters.com/innovative-universities-2019	2015	No
Instituto de Políticas y Bienes Públicos, Consejo Superior de Investigaciones Científicas	Ranking Web of Universities (Webometrics) www.webometrics.info/en/world	2004	No
RUR Rankings Agency	RUR Round University Ranking https://roundranking.com/ranking/world-university-rankings.html#world-2020	2010	No
Scimago Lab	SCImago Institutions Ranking https://www.scimagoir.com/rankings.php	2009	No
ShanghaiRanking Consultancy	ShanghaiRanking's Academic Ranking of World Universities (ARWU) https://www.shanghairanking.com/rankings/arwu/2021	2003	No
Times Higher Education	THE World University Rankings https://www.timeshighereducation.com/world-university-rankings/2021/world-ranking#! THE Impact Rankings https://www.timeshighereducation.com/world-university-rankings/2021/world-ranking#!	2004	No
Consortium of organizations Centre for Higher Education (CHE), Center for Higher Education Policy Studies (CHEPS), Centre for Science and Technology Studies (CWTS), Foundation for Knowledge and Development (Fundación CYD), with a number of associate and financial partners	U-Multirank www.umultirank.org	2014	No
University Ranking by Academic Performance	URAP University Ranking by Academic Performance https://www.urapcenter.org/Rankings/2020-2021/World_Ranking_2020-2021	2010	No
U.S. News & World Report LP	US News Best Global Universities Rankings http://www.usnews.com/education/best-global-universities/rankings	2014	No
University of Indonesia	UI GreenMetric Ranking of World Universities http://greenmetric.ui.ac.id/overall-rankings-2020	2010	No
Association of Rating, Ranking and Other Performance Evaluations Makers (ARM)	Three University Missions Moscow International University Ranking (MosIUR; Moscow Ranking) www.mosiur.org	2017	No

Source: Own elaboration using data from ireg-observatory.org

Based on table 1, university rankings within the framework of the IREG Observatory (Observatory on Academic Ranking and Excellence), it follows that the promotion of entrepreneurship is not included in the global university rankings. It is true that, in general, these rankings allow easy access to information about each

university, establish comparisons between them, and promote the continuous improvement of universities, although there are no references to performance in entrepreneurship. Thus, there is a contradiction between the relevance given to promoting entrepreneurship in universities and the absence of evaluation criteria and measurement indicators of EE in the analysed rankings.

3. Conclusions

The entrepreneurial university has gained significant importance over time, as it plays a crucial role in fostering innovation, economic growth, and societal development. Initially emerging within the fields of economics and business administration, EE has since evolved to become a cross-disciplinary focus within universities. Today, it is evident that EE transcends traditional boundaries, impacting students across various fields of study and preparing them to be proactive agents of change in the modern world.

Given the evolution of the university's mission and the growing emphasis on entrepreneurship, it is crucial for global university rankings to incorporate criteria related to entrepreneurship. These organizations, tasked with evaluating and measuring the services provided by the education sector, should not overlook the importance of entrepreneurship. By including entrepreneurship as a key factor in their assessments, rankings will not only better reflect the universities' contributions to society but also encourage institutions to prioritize and develop their entrepreneurial programs further.

In conclusion, this study highlights the significance of entrepreneurial universities and their evolution over time. To ensure that university rankings accurately represent the changing landscape of higher education, it is essential to include entrepreneurship as a critical criterion in evaluations. Future research could explore the development of more comprehensive methodologies for assessing entrepreneurship within universities and investigate the long-term impact of entrepreneurship education on student outcomes, economic growth, and societal progress. This would ultimately help to drive further improvements and innovation within the higher education sector.

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