

Clustering of Latin-American universities in Top10 of Ranking Web of Universities July 2020

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Abstract.- Ranking Web of Universities allows to compare the university performance, which ranks University Education Institutions according to their web visibility, also, the web presence and the access to the website, through a World Rank, product of the relationship with four indicators: Presence, Impact, Openness and Excellence. In this paper, Latin-American universities in Top10 of Ranking Web of Universities July 2020 had been characterized by clusters to relate and compare their position on indicators through a descriptive analysis. The report first presents information about the ranking and, then, shows the clusters formed between World Rank and individual performances of universities in respect to indicator classification. USP (Brazil) highlights as the university best positioned in the four Ranks: Presence, Impact, Openness and Excellence, however, it shares this place with UNAM (Mexico) in first three relating World Rank with every indicator rankings.

Keywords: Clusters, University, Ranking Web of Universities, Latin-American universities.

1. Introduction

Ranking Web of Universities (or Webometrics Ranking) [1] [2] publishes a ranking of university institutions worldwide, with a biannual frequency: at the end of January and July of each year, with in order to measure the university web performance as presence, visibility and web access, through a positive number positioning the university: World Rank (WR) in respect to

four indicators, which evaluates and compare: Presence (P), Impact (I), Openness (O) and Excellence (E) [3] [4]. Information source is, to each respective indicator, Google, Ahrefs Majestic [5], Google Scholar Profiles [6] and Elsevier's Scopus Database [7].

Reports are presented globally, by continent or region [8], as happens with QS World University Rankings [9] or QS World University Rankings® Latin America Region [10]. Any one of the indicators may be set and, then, ranking the universities according to the value [4] [11].

This paper aims to characterize, through clusters, Latin-American universities in Top10 of Ranking Web of Universities July 2020 [13], in order to relate and compare their position on indicators through a descriptive analysis. The report first presents information about the ranking and, then, shows the clusters formed between World Rank and individual performances of universities in respect to indicator classification: PR, IR, OR and ER.

Nomenclature

| | |
|----|-----------------|
| WR | World Rank |
| PR | Presence Rank |
| IR | Impact Rank |
| OR | Openness Rank |
| ER | Excellence Rank |

2. Ranking Web of Universities July 2020

Ranking Web of Universities began publication in July 2004. The most recent edition is published in July 2020, seventeenth, second of this year, with a classification over 30.000 universities across the world, realized by Spanish National Research Council (CSIC) in Madrid [14] in order to stimulate competition between universities with regard to their web presence and, also, promote Open Access publications of scientific papers [4].

The main point of the classification is to position and rank universities of the world, of a continent, of a country [8] according to World Rank from four indicators: Presence (P), Impact (I), Openness (O) and Excellence (E), which have different weightings: 5%, 50%, 10% and 35%, respectively, and cause, in turn, their own order and, in that sense, reports do not show indicator values [3] [4].

Table 1 shows the results of the Latin-American universities positions in Top10 of Ranking Web of Universities July 2020 [13], which has been used for the descriptive analysis. Universities are distributed in this sense between four countries: USP, UNICAMP, UFRJ, UNESP, UFRGS, UFMG and UFSC from Brazil; UNAM from Mexico, UCHILE and UBA from Argentina.

3. Ranking Web of Universities July 2020 and Top10 of Latin-American universities

Below is shown the clusters formed relating the World Rank values with the values of: PR, IR, OR and ER of Latin-American universities in Top10 of Ranking Web of Universities July 2020 [3] [13].

Table 1. List of Latin-American universities in Top10 of Ranking Web of Universities July 2020 [13].

| University | Country | World Rank | Presence Rank | Impact Rank | Openness Rank | Excellence Rank | |
|--|---------|------------|---------------|-------------|---------------|-----------------|-----|
| | | | 5% | 50% | 10% | 35% | |
| University of São Paulo | USP | Brazil | 68 | 6 | 131 | 54 | 63 |
| National Autonomous University of Mexico | UNAM | Mexico | 144 | 3 | 105 | 168 | 324 |
| University of Campinas | UNICAMP | Brazil | 227 | 83 | 284 | 167 | 283 |
| Federal University of Rio de Janeiro | UFRJ | Brazil | 231 | 297 | 189 | 279 | 340 |
| University of Chile | UCHILE | Chile | 304 | 62 | 320 | 359 | 402 |
| São Paulo State University Franca Campus | UNESP | Brazil | 307 | 163 | 466 | 179 | 332 |
| Federal University of Rio Grande do Sul | UFRGS | Brazil | 341 | 96 | 403 | 310 | 417 |
| University of Buenos Aires | UBA | Argentina | 378 | 171 | 450 | 440 | 471 |
| Federal University of Minas Gerais | UFMG | Brazil | 389 | 137 | 582 | 261 | 450 |
| Federal University of Santa Catarina | UFSC | Brazil | 400 | 117 | 348 | 434 | 628 |

3.1. Relation between World Rank and Presence Rank (PR)

PR, with a weighting of 5%, reflects public knowledge shared and is calculated in order to the size or number of pages of the main webdomain of the university and it includes all the subdomains that share the same main webdomain. The information source is Google [3].

Fig. 1 shows the cluster formed with Latin-American universities in Top10 of Ranking Web of Universities July 2020, in relating the World Rank and PR values [13]. Cluster characteristics are visualized in Table 2. Best placed universities, located in cluster 1, are: USP (Brazil) and UNAM (Mexico). Second place, in cluster 3, Four Brazilian universities highlight: UNICAMP, UFRGS, UFSC and UFMG and UCHILE, with WR values over 200, but with PR values below 150.

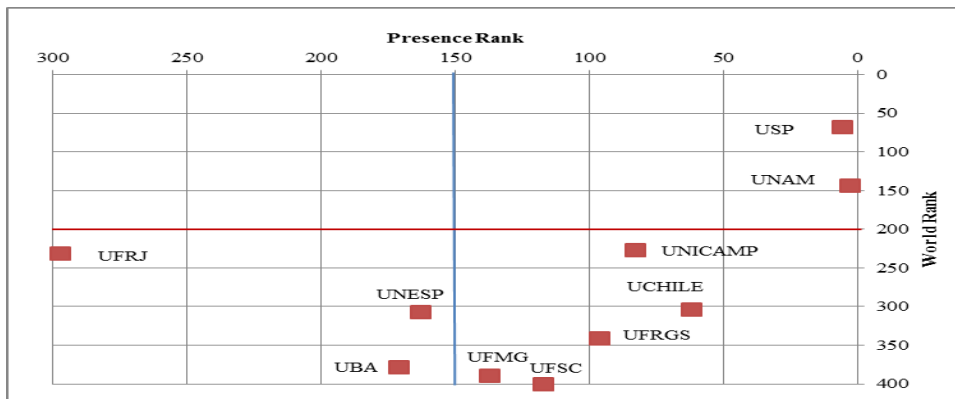


Fig. 1. Cluster of World Rank and Presence Rank (PR) of Latin-American universities in Top10 of Ranking Web of Universities July 2020 [13].

Table 2. Cluster characteristics of World Rank and Presence Rank (PR) of Latin-American universities in Top10 of Ranking Web of Universities July 2020 [13].

| Cluster | University | World Rank | Presence Rank |
|---------|------------------------------------|------------|---------------|
| 1 | USP, UNAM | WR<200 | PR<150 |
| 2 | UNESP, UBA, UFRJ | WR>200 | PR>150 |
| 3 | UNICAMP, UCHILE, UFRGS, UFMG, UFSC | WR>200 | PR<150 |

3.2. Relation between World Rank and Impact Rank (IR)

IR represents the classification with highest weighting: 50% and its data are obtained from Ahrefs Majestic [5]. It reflects web contents impact and measures how number of external networks (subnets) linking to the institution’s webpages [3].

Fig. 2 shows the cluster formed with Latin-American universities in Top10 of Ranking Web of Universities July 2020, in relating the World Rank and IR values, while cluster characteristics are presented in Table 3 [13]. USP (Brazil) and UNAM (Mexico) highlight as the best positioned in cluster 1. Then, in cluster 3, Brazilian universities are located: UFRJ and UNICAMP, with WR values over 200, highlight to their IR values below 300.

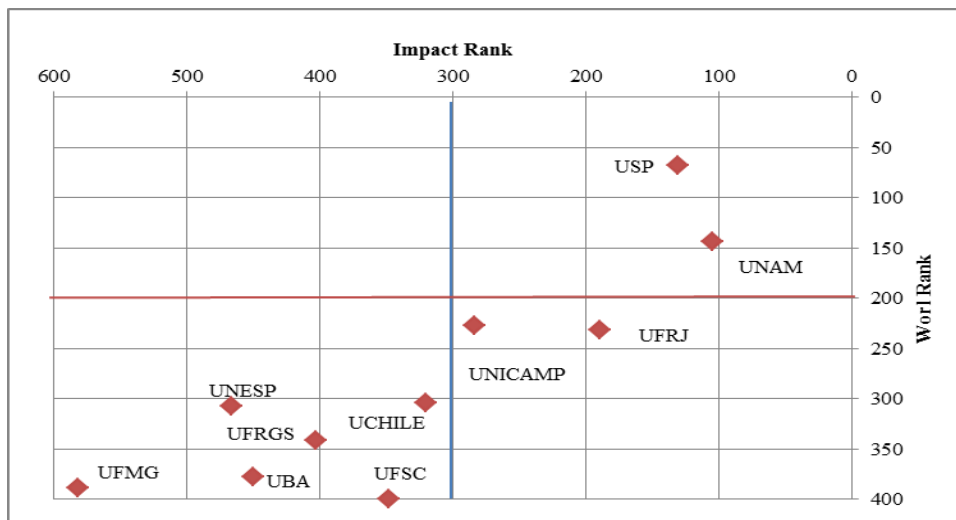


Fig. 2. Cluster of World Rank and Impact Rank (IR) of Latin-American universities in Top10 of Ranking Web of Universities July 2020 [13].

Table 3. Cluster characteristics of World Rank and World Rank e Impact Rank (IR) of Latin-American universities in Top10 of Ranking Web of Universities July 2020 [13].

| Cluster | University | World Rank | Impact Rank |
|---------|---------------------------------------|------------|-------------|
| 1 | USP, UNAM | WR<200 | IR<300 |
| 2 | UNESP, UCHILE, UFRGS, UFSC, UBA, UFMG | WR>200 | IR>300 |
| 3 | UFRJ, UNICAMP | WR>200 | IR<300 |

3.3. Relation between World Rank and Openness Rank (OR)

OR data, also called Transparency Rank, are obtained from Google Scholar Profiles [6], it has a weighting of 10%. This ranking highlights the top cited researchers when calculating number of citations from Top 210 mean authors [3].

Fig. 3 shows the cluster formed with Latin-American universities in Top10 of Ranking Web of Universities July 2020, in relating the World Rank and OR values [13]. Cluster characteristics are visualized in Table 4, where highlight University Education Institutions USP (Brazil) and UNAM (Mexico) as the best universities, analysis concurs with the PR and IR classification. Followed by UNICAMP and UNESP with better OP values below 225 and WR values over 200.

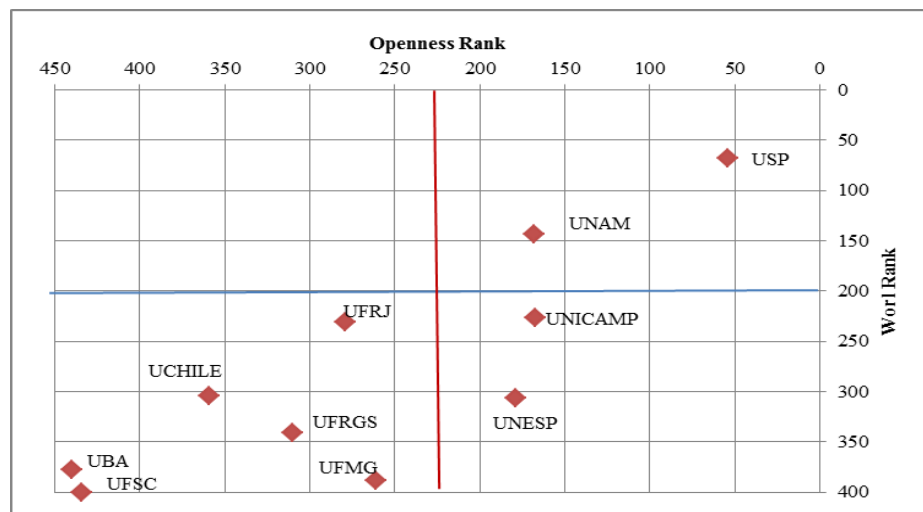


Fig. 3. Cluster of World Rank and Openness Rank (OR) of Latin-American universities in Top10 of Ranking Web of Universities July 2020 [13].

Table 4. Cluster characteristics of World Rank and Openness Rank (OR) of Latin-American universities in Top10 of Ranking Web of Universities July 2020 [13].

| Cluster | University | World Rank | Openness Rank |
|---------|--------------------------------------|------------|---------------|
| 1 | USP, UNAM | WR<200 | OR<225 |
| 2 | UFRJ, UCHILE, UFRGS, UFMG, UBA, UFSC | WR>200 | OR>225 |
| 3 | UNICAMP, UNESP | WR>200 | OR<225 |

3.4. Relation between World Rank and Excellence Rank (ER)

ER, or Scholar Rank, has a weighting of 35%. It reflects top cited papers, when calculating number of papers amongst the top 10% most cited in each one of the 26 disciplines of the full Elsevier’s Scopus Database [7] during the last five years: 2014 – 2018 [3]. Fig. 4 presents the cluster formed with Latin-American universities in Top10 of Ranking Web of Universities July 2020, in relating the World Rank and ER values [13]. Cluster characteristics are visualized in Table 5. In this case, USP (Brazil) is the only university located in cluster 1. UNAM (Mexico) is located in cluster 2 with WR below 200, but ER over 300. Finally, in cluster 4, UNICAMP (Brazil) with ER values below 300 and WR >200.

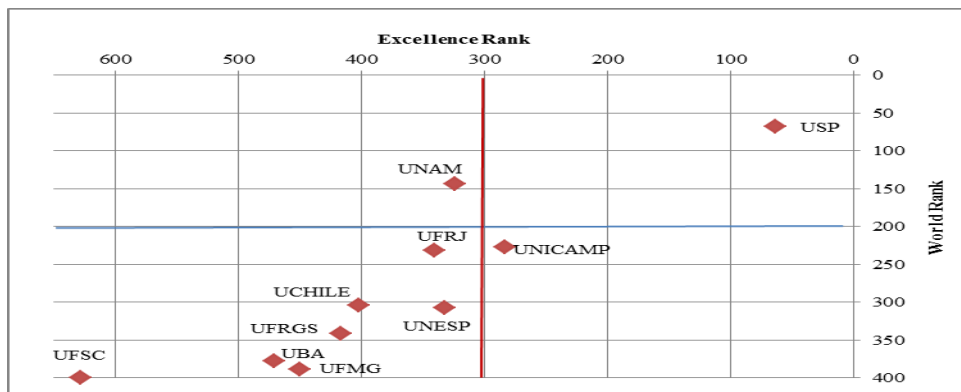


Fig. 4. Cluster of World Rank and Excellence Rank (ER) of Latin-American universities in Top10 of Ranking Web of Universities July 2020 [13].

Table 5. Cluster characteristics of World Rank and Excellence Rank (ER) of Latin-American universities in Top10 of Ranking Web of Universities July 2020 [13].

| Cluster | University | World Rank | Excellence Rank |
|---------|---|------------|-----------------|
| 1 | USP | WR<200 | ER<300 |
| 2 | UNAM | WR<200 | ER>300 |
| 3 | UNICAMP | WR>200 | ER>300 |
| 4 | UFRJ, UCHILE, UNESP, UFRGS, UBA, UFMG, UFSC | WR>200 | ER<300 |

4. Conclusions

Ranking Web of Universities orders University Education Institutions according to the web performance given by presence, visibility and web Access, through four indicators, as well as may be used to classify universities: Presence (P), Impact (I), Openness (O) and Excellence (E). This paper had characterized, through clusters, Latin-American universities in Top10 of Ranking Web of Universities July 2020, to relate and compare their position in indicators through a descriptive analysis. This Top 10 is concentrated in seven universities from Brazil, one from Mexico, one from Chile and one from Argentina. The results highlight:

- a) USP (Brazil) is the best positioned university in four Ranks: P, I, O and E, however, it shares this place with UNAM (Mexico) in Rank: P, I and O, relating World Rank with every indicator ranking.
- b) In respect to Impact indicator, which has a weighting of 50%, the universities with WR values over 200 and IR below 300 are the Brazilian UFRJ and UNICAMP, which are located in cluster 3.

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