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EDITORIAL

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RESEARCH: BEYOND THE RANKING OF THE UNIVERSITIES

LA INVESTIGACIÓN: MAS ALLÁ DEL RANKING DE LAS UNIVERSIDADES

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One of the most important processes and from which every other university activity is sustained is the investigation. Research is creation, original production, development of argumentation and coherence of ideas, thorough review, deep reflection, solving mysteries, and ultimately giving focus to dreams. The integral conceptual approach, proposed by Rico[(1)], for whom research "is to colonize a small or large plot, sowing, cultivating, harvesting and distributing its fruits, so later others come to improve, optimize and overcome our task".

Metaphorically with sowing the research process includes three moments: A first moment sowing and cultivating as the application of the methodological approach, a second time to harvest such as the assimilation, interpretation and discussion of the results and finally the distribution of its fruits can be understood as the dissemination of knowledge, an unequivocal synonym of publication. The university, as the cradle of research, has the arduous task of integrating, appropriating and producing knowledge, in addition to transmitting it.

The Peru's top 20 universities according to SUNEDU and América Economía

At the beginning of 2018, the National Superintendency of University Education presented the biennial report of university reality, where included its ranking of the best universities in Peru from an evaluation by Incites Bencharking & Analytics, which collected data from registered publications by Web of Science Core Collection[(2)].

What were the measured indicators to create this ranking? First, the number of posts related to each university in journals considered by the mentioned website and the number of documents quotable between 2014 and 2016. Likewise, the H index of each university between 1996 and 2016, which is the amount of scientific articles published and how many times they were cited, and the number of published articles among the 10% of the most cited in the Web of Science Core Collection, also between 2014 and 2016. In this evaluation the Ricardo Palma University in Lima, Peru ranked 18th.

In October, América Economía magazine shared its own ranking of the best universities in Peru in 2018, evaluating indicators such as quality of university teachers, research and infrastructure, ranking 18th out of more than 90 evaluated universities.

The good news for the Ricardo Palma University is that a recent evaluation: Advance of the scientist publication from Peruvian universities in Scopus in December 2018, (see table 2) ranked us fifteenth, climbing 3 steps in the upper third of Peru's universities, with a promising indicator of progress in publications (greater than 100%)

Being the biomedical area one of the areas with the greatest power of nationally and internationally publication.

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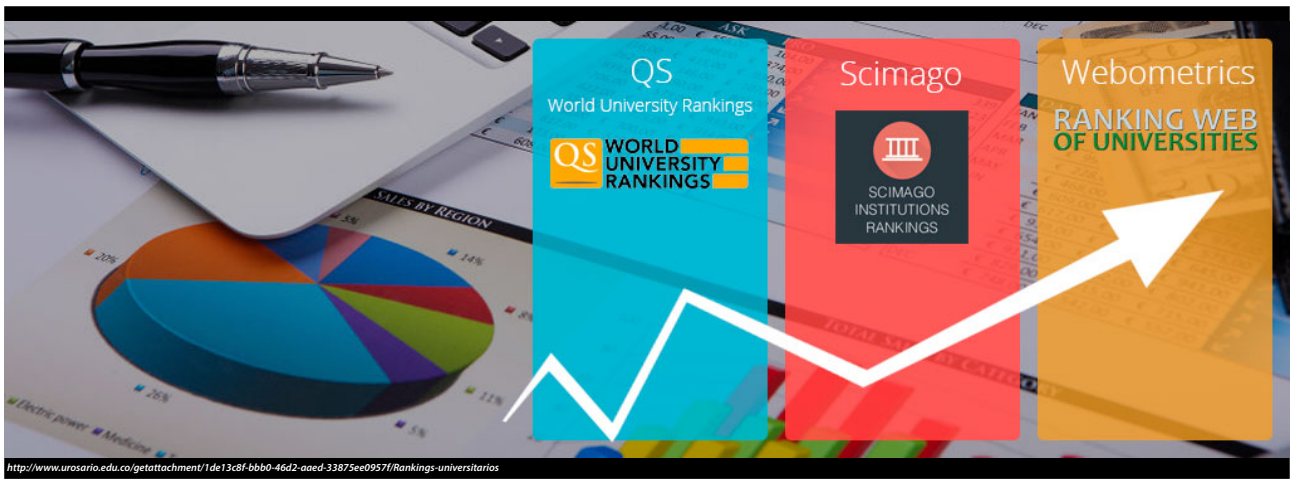

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Research in private universities: A luxury or a necessity?[5]

The research, beyond the ranking, represents one of the most important needs for public and private universities. The relevance that each of these institutions gives to this item, is clearly reflected in the quantity of published articles, the members of the National System of Researchers (NSR) which has contemplate within its academic staff, as well as the number of patents given from knowledge obtained. Every higher education institution should consider in their aim priorities, to improve year after year the infrastructure and financial support for research. The above mentioned is essential to become leading universities, producers of new knowledge and participants in the development of their country, achieving recognition as a committed institution with scientific and technological research.

Investigation is present in the man's life from its origins. By investigating, we provide others new knowledge about the reality around us, but we also benefit the population and, above all, we offer our country the essential elements to get better. This results in what is known as "knowledge-based economy", activity that is carried out by countries such as the United States, which have always shown a very high technological development and competitiveness. The US invests more than 2.5% of its Gross Domestic Product (GDP) in scientific activities6 In 2011 in Mexico, only 0.46% of GDP was invested in science, technology and innovation. In Europe, Finland and Sweden allocate more than 3.5% to this item. The World Bank states that Peru invests only 0.15% of its GDP in research and development, despite the fact that almost a third of the population are young people looking for opportunities to grow academically. In South America, Brazil invests more than 1%, about 0.90% more of what Peru allocates to research. Of course, this investment yields these countries a greater quantity of scientific products, good technological development and, obviously, better competitiveness. In most developed countries, the scientific activity is carried out in a very important way in higher learning institutions, especially in private universities. Harvard, Cambridge, Princeton, Columbia University and Yale are just an example of the quality level that research can achieve in these educational campuses. These universities not only share the privilege of being classified as institutions with a high research level but, in addition, share the fact of belonging to the private sector (U.S. News and World Report, 2012) In United States a very high percentage of monthly publications comes from these kinds of universities. This is without doubtless, the promotion and investment result that these institutions grant to research.

In relation with the promotion, one of the fundamental points these universities try to stand out in their promotional instruments, is the scientific activity they develop. The promotion of scientific activity, are not only managed for regular courses, they also run special summer courses, which even undergraduate international students are invited to live with professional scientists and thus start their scientific

development in high level laboratories. In this sense, the Research Institute in Biomedical Sciences (RIBS) from Ricardo Palma University, has been a pioneer to develop "Research Courses and degree by thesis and summer research programs ",such us the investigation internships promoted by the Peruvian Association of medical schools , where medicine students from many universities around the country complete an intensive research experience, in addition to the develop of a national and international collaboration network.

Regarding investment, these universities consider a must-invested fund in what they called institutional priorities. As part of these priorities, stand out the support for proposals research and the scientific infrastructure purchase, which represents for the university, a way to improve its competitiveness[7] .It is clear that these institutions consider research as more than just an expense, they see it as a urgent need in private universities: Only as an example, the inclusion of high quality scientific programs significantly increases the admission of academic excellence students. On the other hand, investment in high quality research lines will pay off subsidizing their graduate studies programs and obtaining in the medium and long term of extra-institutional financing and patents that, without being precise, will recover two times or even more than the amount invested. Universities from United States know very well that investing in scientific activities represent a great growth opportunity. It is evident the product of this investment is reflected these universities world ranking position.

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The research perspective

Is interesting to observe the grounded model in connection with the business environment. This is the way many universities have achieved to be at the forefront of private universities regarding the scientific products generation. It is no coincidence in Peru, since 2017 the National Council of Science, Technology and technological innovation and the World Bank, launched calls aimed at promoting projects of research with the formula: Academy-company.

In Latin America is estimated only one of ten investigations is developed by private institutions. The foregoing makes clear the need to promote scientific activity in private sector.

In Peru, the patents culture is very little developed, in most cases, the researcher think first about publishing and rarely about patent. The above is clearly reflected in the gradual increase in publications nationwide but not so of patents requested by our researchers. Patents are research and technological development indicators from a country. It is clear that we are in a vicious circle in which the lower the budget, the less research, the less knowledge and therefore fewer patents.

The Peruvian researchers' number per University, compared to other countries, is very small; however, year after year it has been increasing.

Despite this increase, the number is very small since it represents around 0.01% of the total population. It is evident the necessity to develop study programs and research activities aimed at training of resources. Research in private universities requires close collaboration between the attached professors, researchers and undergraduate and graduate students. This has already started in public universities and some of the most recognized private universities in the country.

In private universities the number of researchers belonging to the National System of Researchers is greatly fewer. One of the main problems that causes private universities have fewer of researchers registered in NSR is the lack of resources aimed at supporting research projects in these institutions.

It is essential to generate the importance that should receive the vision of the university-company binomial, a point that is probably not so valued and especially little exercised by many private universities. The above could explain in some way, the reflected number in the amount of publications and patents, which is strengthened by have the financial support of the business sector.

Unfortunately, in Peru, economic support of the business sector is really lower (<2.5%) comparing to other countries (more than 60%), even so, this represents a great support for the development of scientific protocols in those universities turn to companies support this item and that are willing to provide the necessary financing to carry out research projects. The company can (and should) approach to the academic world to try to solve their problems, those that everyday life and its processes present them, but university research policies cannot focus only on solving specific issues. The university can seek business funding for some axes, but above all must also finance with its own resources a more theoretical or applied investigation, exercised by their institutes, teachers and students.

Needs and Necessary Reforms:

EIn Peru, and in private universities, the reforms should be aimed at developing the triple helix model, a model where universities, the business sector and government interact in an organized way in order to promote the scientific and technological advance.

However, one of the most important factors to obtain patents, NSR members and published articles is the infrastructure.

This is one of the most important points, since the institution may have with well-structured and well-founded projects, but if does not have a well-equipped laboratory or with the necessary elements to carry it out, good results will not be obtained and therefore it won't be an investigation with the quality required to be published.

Research should be a topic of interest to our youth, since students are potential inventors, able to ensure universities as natural sources of innovation. Thus, the research field should be seen as one of the education basic pillars and not as a necessary institutional requirement for any type of accreditation of the offered careers. This is why it is very important to introduce in Peruvian universities, courses to promote the training of new researchers, which teach students the investigation importance, getting them to see it not only as a subject that must be taken to continue advancing in the bachelor's degree, but as a contribution of part of them to scientific advance. Without a doubt, research should be more than a luxury it must be considered as a real need for public and private universities, especially for private ones, since at the moment they have not always addressed it in the most convenient way. Peruvian and Latin-American private universities must visualize that research is an area for positioning them as leading institutions in the development of innovative protocols, in addition to provide new knowledge, serve as base for research being conducted in other countries. High-level research should be done, which has the financing necessary to transform knowledge in applicable technology to the country needs.

From the universities we must demand to our students and teachers the ability to interpellated, critical thinking, as well as promoting maximum quality level in investigations so that they can appear in indexed journals. While more academics Peruvians are present in such publications, our university system will have a greater presence in international rankings.

But the universities ranking is only the instrument, and not the objective. The ultimate goal is to understand research as an essential part of life university. The system must be organized to that as an aim and not with appearing in rankings. The second must be a consequence of the first; let's work assuming that, if we want it solid, it will not be immediate. The logic indicators, often so illogical, no always reflects how faithful we are to the essence of an institution. It is fine to measure, but it is better to know what we want to measure and why.

Finally, higher education institutions, both public and private, must become "entrepreneurial universities", which bet on innovation, support the new proposals and have the initiative to develop new protocols and lines research to carry out investigation itself and also teach students to question and wonder the objective to research in private universities. However, many Peruvian institutions have overlooked transitions to college research, and from there to the university enterprising. Many universities by default, for inertia and by mandate, they still are only teaching8They must teach students to break paradigms and to propose new things to allow Peru stop being a knowledge consuming country and moving to be a creates its own technology country and carries of the same worldwide. Investigation must be considered as one of the most important weapons the country has to promote the ideas that thousands of young people have in mind and could generate a relevant change in the usual way Peru is viewed around the world. The idea that research is a luxury that generates expenses should be left behind, to begin to see it as a need which also position universities as leaders in new knowledge creation, can make them participate in the development of a Peru recognized for its commitment to scientific and technological research in benefit of the society.

Table 1. Peru: Ranking of Universities - General.

RANK	COLLEGE	N ° OF YEARS TO 2016	HEADQUARTERS (DEPARTMENT)	TYPE OF MANAGEMENT	N ° UNDERGRADUATE STUDY PROGRAMS AS OF 2015	TYPE OF AUTHORIZATION / LICENSE	SCORE
1	Pontificia Universidad Católica del Perú	99	Lima	Associative	63	Graduate	100.000
2	Universidad Peruana Cayetano Heredia	55	Lima	Associative	24	Graduate	69.187
3	Universidad Nacional Mayor de San Marcos	465	Lima	Public	65	Final Authorization	54.548
4	Universidad Nacional Agradia La Molina	56	Lima	Public	12	Graduate	38.432
5	Universidad Nacional de ingenieria	61	Lima	Public	28	Final Authorization	26.086
6	Universidad Nacional de San Antonio Abad del Cusco	324	Cusco	Public	40	Final Authorization	23.584
7	Universidad Nacional de Trujillo	192	La Libertad	Public	45	Final Authorization	20.045
8	Universidad Cientifica del Sur	18	Lima	Sociative	21	Final Authorization	19.865
9	Universidad de Piura	48	Piura	Associative	28	Graduate	14.843
10	Universidad del Pacifico	54	Lima	Associative	9	Graduate	11.088
11	Universidad Nacional del Altiplano	55	Puno	Public	35	Final Authorization	10.987
12	Universidad Peruana de Ciencias Aplicadas	22	Lima	Sociative	52	Graduate	9.976
13	Universidad Nacional de la Amazonia Peruana	55	Loreto	Public	30	Final Authorization	9.671
14	Universidad de San Martin de Porres	54	Lima	Associative	23	Graduate	8.183
15	Universidad de Lima	54	Lima	Associative	11	Graduate	7.585
16	Universidad Nacional de San Agustin	188	Arequipa	Public	47	Final Authorization	7.562
17	Universidad Esan	13	Lima	Associative	10	Final Authorization	6.844
18	Universidad Ricardo Palma	47	Lima	Associative	23	Graduate	6.227
19	Universidad Católica San Pablo	19	Arequipa	Associative	11	Graduate	4.198
20	Universidad Privada San Ignacio de Loyola	21	Lima	Sociative	41	Graduate	4.005
21	Universidad Nacional Federico Villareal	53	Lima	Public	67	Final Authorization	3.909
22	Universidad Nacional de Piura	55	Piura	Public	35	Final Authorization	3.097
23	Universidad Católica de Santa María	55	Arequipa	Associative	28	Final Authorization	2.765
24	Universidad Nacional Pedro Ruiz Gallo	46	Lambayeque	Public	ND	Final Authorization	2.309
25	Universidad Privada Antenor Orrego	28	La Libertad	Associative	23	Final Authorization	1.565
26	Universidad Nacional del Callao	50	Lima-Callao	Pública	17	Final Authorization	1.235
27	Universidad Alas Peruanas	20	Lima	Sociative	31	Final Authorization	0.819
28	Universidad Nacional de Tumbes	32	Tumbes	Public	20	Final Authorization	0.439
29	Universidad La Salle	5	Arequipa	Associative	3	Provisional authorization	0.420
30	Universidad Privada San Juan Bautista S.A.C	19	Lima	Sociative	16	Final Authorization	0.292
31	Universidad Andina del Cusco	32	Cusco	Associative	18	Final Authorization	0.281
32	Universidad Privada del Norte	22	La Libertad	Sociative	44	Graduate	0.063

Note 1: Report generated based on documents indexed in the Web of Science Core Collection on September 8, 2017.
Note 2: For type of Authorization / License, the cut-off date is November 11, 2017.
Source: Inotes Benchmarking G. Analytics - Web of Sdence Core Collection SUNEDU.
SUNEDU elaboration.

Table 2. Progress of the scientific production of Peruvian universities in Scopus, December 2018.

		TOTAL ARTICLES		SCOPUS 2017		
	UNIVERSITIES	2018*	ADVANCE**	DIC 2018	DIC 2017	ADVANCE***
1	U. Peruana Cayetano Heredia	350	(87.1)	402	330	(82.1)
2	Pontificia U. Católica del Perú	349	(84.7)	412	307	(74.5)
3	U. Nac. Mayor de San Marcos	341	(91.9)	371	244	(65.8)
4	U. Peruana de Ciencias Aplicadas	147	(105.8)	139	108	(77.7)
5	U. San Martin de Porres	100	(96.2)	104	73	(70.2)
6	U. Cientifica del Sur	82	(132.3)	62	43	(69.4)
7	U. Nac de Ingenieria	77	(120.3)	64	54	(84.4)
8	U. Nac de San Agustín	70	(92.1)	76	42	(55.3)
9	U. Nac Agraria La Molina	63	(82.9)	76	62	(81.6)
10	U. Nac San Antonio Abad	63	(112.5)	56	33	(60.0)
11	U. del Pacífico	60	(127.7)	47	42	(89.4)
12	U. San ignacio de Loyola	48	(106.7)	45	30	(66.7)
13	U. Continental	39	(108.3)	36	24	(70.6)
14	U. Nac Trujillo	38	(92.7)	41	31	(75.6)
15	U. Ricardo Palma	35	(116.7)	30	20	(69.0)
16	U. Privada del Norte	33	(84.6)	39	31	(79.5)
17	U. de Piura	25	(55.6)	45	27	(60.0)
18	U. ESAN	23	(79.3)	29	27	(93.1)
19	U. Privada Antenor Orrego	22	(50.0)	44	22	(50.0)
20	U. Nac Federico Villarreal	21	(77.8)	27	20	(74.1)

*** Scopus December 5, 2018, based on the affiliation ID of each university**
**** Progress in relation to the previous year (articles 2018 * 100 / articles 2017)**
***** Production advance of 2017 measured in December 2017, over what it finally had, measured in December 2018**
Conflict of interest: prepared by PMT, Director of Project Management and Research Promotion of the Southern Scientific University.

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