Top Fifty of Vietnamese Universities with Best International Publications in 2019

This article provides an analysis of data extracted from the Scopus scientific database last updated on February 1, 2020. Data processing methods and data used for analysis are provided at the end of the article. In 2019, the total number of publications with Vietnamese address counted up to 12,307 of different types. Among these, publications from Vietnamese universities take up 90.3% or 11,118 publications. The remaining number comes from hospitals, independent research organizations, businesses, colleges, and a few high schools.

Vietnamese publications in the Scopus database in 2019 come in eleven types: (1) article or article in press; (2) conference paper; (3) letter; (4) review; (5) book; (6) book chapter; (7) data paper; (8) note; (9) editorial; (10) erratum; and (11) short survey.

Analysis of output

TT	Cơ sở Giáo dục Đại học	Article	Conference Paper	Letter	Review	Book	Book Chapter	Data Paper	Note	Editorial	Erratum	Short Survey	Tổng
1	Trường ĐH Tôn Đức Thắng	2545	67	1	126	--	5	3	3	4	19	--	2773
2	Viện Hàn lâm KH & CN VN	1051	83	4	22	--	11	1	3	4	6	1	1186
3	ĐH Quốc gia HCM	846	284	--	17	--	13	3	1	3	4	--	1171
4	Trường ĐH Duy Tân	1038	52	5	52	--	8	--	4	6	3	1	1169
5	ĐH Quốc gia Hà Nội	656	127	2	12	--	14	--	1	4	4	--	820
6	Trường ĐH Bách Khoa Hà Nội	451	185	1	8	--	17	--	1	1	4	--	668
7	Trường ĐH Nguyễn Tất Thành	481	58	1	20	--	--	--	--	4	1	--	565
8	ĐH Đà Nẵng	230	83	--	6	--	5	--	--	--	1	--	325
9	Trường ĐH Cần Thơ	232	48	1	9	1	14	--	--	1	--	--	306
10	ĐH Thái Nguyên	219	38	2	6	--	35	--	--	--	1	--	301
11	ĐH Huế	248	17	2	13	--	3	--	--	1	2	--	286
12	Trường ĐH Lê Quý Đôn	161	105	--	4	--	7	--	--	1	1	--	279
13	Trường ĐH Y Hà Nội	244	1	9	20	--	--	--	1	--	3	--	278
14	Trường ĐH Công nghiệp TpHCM	216	26	--	3	--	2	--	--	--	--	--	247
15	Trường ĐH Mở TpHCM	199	20	--	3	--	1	1	--	--	--	--	224
15	Trường ĐH Y Dược TpHCM	183	2	6	26	--	2	--	4	1	--	--	224
16	Trường ĐH Sư phạm Hà Nội	182	17	--	7	--	1	1	--	--	2	--	210
17	Trường ĐH Sư phạm Kỹ thuật TpHCM	104	79	--	1	--	3	--	--	1	--	--	188
18	Trường ĐH Thủy Lợi	142	8	--	4	--	1	--	--	--	1	--	156
18	Trường ĐH Phenikaa	133	14	1	4	--	--	--	1	3	--	--	156
19	Trường ĐH Giao thông Vận tải	103	44	--	--	--	4	--	--	--	1	--	152
20	Trường ĐH Hàng hải Việt Nam	108	30	1	7	--	5	--	--	--	--	--	151
21	HV Nông nghiệp Việt Nam	130	5	1	5	--	2	--	1	--	1	--	145
22	Trường ĐH Công nghệ TpHCM (HUTECH)	111	18	--	1	--	--	--	1	1	--	--	132
23	Trường ĐH Mỏ - Địa chất	112	17	--	1	--	--	--	--	--	1	--	131
24	Trường ĐH Công nghiệp Hà Nội	100	22	--	1	--	7	--	--	--	--	--	130
25	Trường ĐH Kinh tế TpHCM	118	3	--	1	--	--	--	--	--	--	--	122
26	Trường ĐH Công nghiệp Thực phẩm TpHCM	107	11	--	--	--	1	--	--	--	1	--	120
27	Trường ĐH Thủ Dầu Một	94	11	--	1	--	--	1	--	--	--	--	107
28	Trường ĐH Vinh	84	10	--	3	--	--	--	--	--	--	--	97
29	Trường ĐH Quy Nhơn	81	1	--	3	--	2	--	--	2	--	--	89
30	Trường ĐH Công nghệ Giao thông Vận tải	80	2	--	--	--	1	--	--	--	1	--	84
31	HV Công nghệ Bưu chính Viễn thông (HN)	42	35	--	--	--	2	--	--	4	--	--	83
32	Trường ĐH Xây dựng	60	12	--	--	--	8	--	--	--	2	--	82
33	Trường ĐH FPT	39	40	--	1	--	--	--	--	--	--	--	80
34	Trường ĐH Ngân hàng TpHCM	75	3	--	--	--	--	--	--	1	--	--	79
34	Trường ĐH Sài Gòn	61	13	--	1	--	2	--	1	1	--	--	79
35	Trường ĐH Sư phạm TpHCM	66	9	--	--	--	2	1	--	--	--	--	78
36	Trường ĐH Giao thông Vận tải TpHCM	61	13	--	2	--	1	--	--	--	--	--	77
37	Trường ĐH Nông Lâm TpHCM	69	3	--	3	--	--	--	--	--	--	--	75
38	Trường ĐH Thăng Long	61	7	--	--	--	2	--	1	--	--	--	71
39	Trường ĐH Nha Trang	59	2	--	5	--	2	--	1	--	1	--	70
40	HV Quân Y	59	1	2	5	--	--	--	1	--	1	--	69
40	Trường ĐH Dược Hà Nội	65	--	--	1	--	--	--	1	2	--	--	69
41	Trường ĐH Đồng Tháp	62	3	--	--	--	--	--	--	--	1	--	66
42	Trường ĐH RMIT Việt Nam	51	10	--	1	--	1	--	1	1	--	--	65
42	Trường ĐH Lâm nghiệp	52	10	--	3	--	--	--	--	--	--	--	65
43	Trường ĐH Y Khoa Phạm Ngọc Thạch	61	--	--	3	--	--	--	--	--	--	--	64
43	Trường ĐH Kinh tế Quốc dân	60	1	--	3	--	--	--	--	--	--	--	64
43	Trường ĐH Việt - Đức	37	23	--	3	--	--	--	--	1	--	--	64
44	Trường ĐH Y tế Công cộng	51	--	1	5	--	--	--	--	2	--	1	60
45	Trường ĐH An Giang	56	2	--	--	--	--	--	--	--	1	--	59
46	Trường ĐH Điện lực	38	14	--	1	--	2	--	--	--	--	--	55
47	Trường ĐH Sư phạm Kỹ thuật Hưng Yên	42	8	--	--	--	3	--	--	--	--	--	53
48	Trường ĐH Tây Nguyên	44	5	--	1	--	--	--	--	--	--	--	50
48	Trường ĐH Sư phạm Hà Nội 2	48	1	--	--	--	1	--	--	--	--	--	50
49	Trường ĐH Ngoại Thương	44	1	--	1	--	--	--	--	--	--	--	46
49	Trường ĐH Lạc Hồng	32	10	--	4	--	--	--	--	--	--	--	46
49	Trường ĐH Hồng Đức	35	10	1	--	--	--	--	--	--	--	--	46
50	Viện Khoa học Nông nghiệp VN	40	--	--	3	--	--	--	--	--	--	--	43
50	Trường ĐH Đà Lạt	35	7	--	1	--	--	--	--	--	--	--	43

Table 1: Top 50 of Vietnamese universities with most international publications in 2019

The top 50 of universities with best publication output in 2019 is given in Table 1. With its exponential growth rate in recent years, Ton Duc Thang University continues to overtake the Vietnam Academy of Science and Technology to lead the list as the Vietnamese university with most publications. The total number of publications in all types from this university is, on average, two or three times that of the next three schools.

The data also show that the four universities with more than one thousand publications per year are

- Ton Duc Thang University,

- Vietnam Academy of Science and Technology,

- National University Ho Chi Minh city, and

- Duy Tan University.

The top ten of universities with best publication output in 2019 are

- seven public universities: Ton Duc Thang University, National University Ho Chi Minh city, National University Hanoi, Hanoi University of Science & Technology, Danang University, Can Tho University, and Thai Nguyen University;

- one research institute: Vietnam Academy of Science and Technology,

- two private universities: Duy Tan University and Nguyen Tat Thanh University.

In addition to the above universities, the top 50 counts several schools of note: Phenikaa University, the University of Technology Ho Chi Minh city, Vinh University, Quy Nhon University, Tay Nguyen University, and the Vietnam Academy of Agriculture Sciences.

A broader analysis shows that all 256 universities, institutes, colleges, and research institutions with university and postgraduate education had international publications in 2019. The 50 first ones, however, have a total publication number (10,673) of 95.9% of the total (11,118).
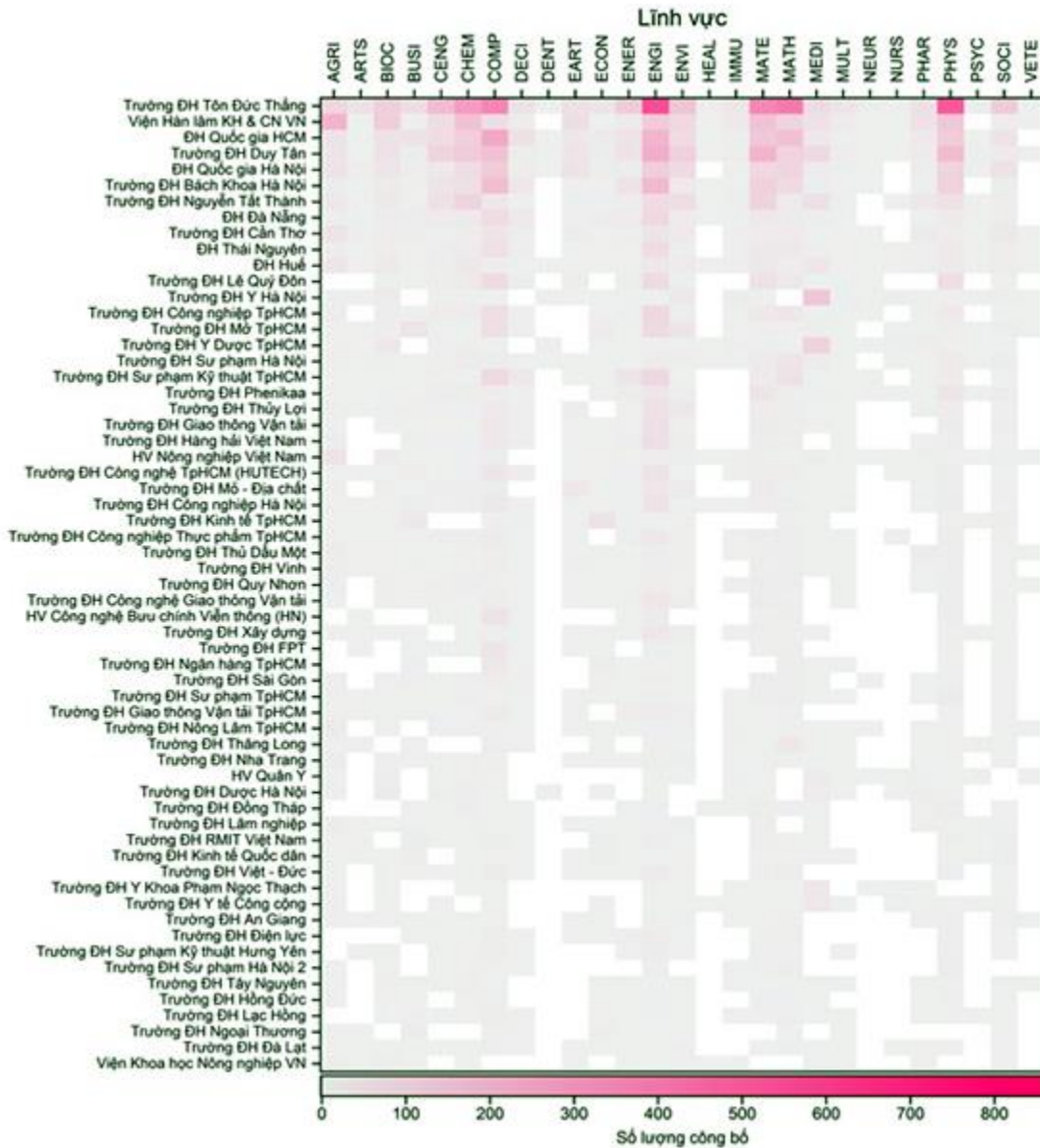
Figure 1: Distribution of international publications in 27 fields. Schools are ordered by decreasing total number of publications. Darker colors show higher numbers, white signifies no publications.

An analysis of the distribution of the international publication among fields shows that most universities have research focused on (in alphabetic order): Agriculture and Biology (AGRI); Biochemistry, Genetics, and Molecular Biology (BIOC); Chemical Engineering (CENG); Chemistry (CHEM); Computer Science (COMP); Earth and Planetary Sciences (EART); Energy (ENER); Engineering and Technology (ENGI); Environmental Sciences (ENVI); Materials Science (MATE); Mathematics (MATH); Medicine (MEDI); and Physics (PHYS). Among these, the key fields at Vietnamese education and research institutions are:

- Engineering and Technology,

- Physics,

- Computer Science,

- Materials Science,

- Mathematics.

Other fields with quite some but not many publications are: Business, Administration, and Accounting (BUSI); Decision Science (DECI); Economics (ECON); Multidisciplinary Fields (MULT); Pharmacology (PHAR); and Social Sciences (SOCI). In the remaining fields, very little research was published, namely in Arts and Literature (ART); Dentistry (DENT); Health Professions (HEAL); Immunology and Microbiology (IMMU); Neurology (NEUR); Nursing (NURS); Psychology (PSY); and Veterinary (VETE).

Analysis of citations

Up to the last time the data was updated, the total number of citations to all publications in 2019 from Vietnam was 16,211. For the fifty universities mentioned above, the total number of citations to all their publications was 14,357, or 88.6% of the total. Note that the total number of citations for these fifty universities is not the total sum of the numbers for each of them, but that it is counted as the total number of citations to publications with at least one of these fifty schools on them.

TT	Cơ sở Giáo dục Đại học	Trích dẫn các công bố năm 2019 nhận được				
		Công bố có tác giả liên lạc	Công bố có tác giả đầu tiên & tác giả liên lạc	Công bố có tác giả đầu tiên	Công bố có đồng tác giả	Tổng
1	Trường ĐH Tôn Đức Thắng	3625	1383	937	1063	7008
2	Trường ĐH Duy Tân	424	196	458	1447	2525
3	ĐH Quốc gia Hà Nội	154	210	43	644	1051
4	ĐH Quốc gia HCM	122	208	109	551	990
5	Viện Hàn lâm KH & CN VN	132	91	57	644	924
6	Trường ĐH Nguyễn Tất Thành	60	67	83	595	805
7	Trường ĐH Bách Khoa Hà Nội	23	105	66	321	515
8	Trường ĐH Công nghệ TpHCM (HUTECH)	58	72	16	360	506
9	Trường ĐH Y Hà Nội	17	29	8	246	300
10	ĐH Thái Nguyên	19	103	34	143	299
11	Trường ĐH Lê Quý Đôn	18	22	57	190	287
12	ĐH Đà Nẵng	15	12	61	179	267
13	Trường ĐH Công nghệ Giao thông Vận tải	19	92	59	95	265
14	ĐH Huế	29	22	16	167	234
15	Trường ĐH Công nghiệp TpHCM	8	10	39	170	227
16	Trường ĐH Mỏ - Địa chất	33	14	20	154	221
17	Trường ĐH Hàng hải Việt Nam	1	39	11	145	196
18	Trường ĐH Y Dược TpHCM	7	12	7	169	195
19	HV Nông nghiệp Việt Nam	12	19	22	125	178
20	Trường ĐH Giao thông Vận tải	0	15	10	139	164
21	Trường ĐH Phenikaa	50	28	17	67	162
22	Trường ĐH Cần Thơ	3	30	31	97	161
23	Trường ĐH Thủy Lợi	--	0	41	119	160
24	Trường ĐH Công nghiệp Thực phẩm TpHCM	0	4	15	138	157
25	Trường ĐH Giao thông Vận tải TpHCM	0	115	6	17	138
26	HV Quân Y	6	1	0	129	136
27	Trường ĐH Công nghiệp Hà Nội	19	9	9	95	132
28	Trường ĐH Sư phạm Hà Nội	3	36	11	81	131
29	Trường ĐH Mở TpHCM	4	12	9	91	116
30	Trường ĐH Kinh tế TpHCM	2	20	13	69	104
31	Trường ĐH Sư phạm Kỹ thuật TpHCM	3	12	44	38	97
32	Trường ĐH Quy Nhơn	7	14	2	73	96
33	Trường ĐH Nông Lâm TpHCM	1	7	4	72	84
34	Trường ĐH Vinh	11	22	4	34	71
34	Trường ĐH Tây Nguyên	1	4	6	60	71
35	Trường ĐH Sư phạm TpHCM	2	2	0	66	70
36	Trường ĐH Đồng Tháp	0	1	3	63	67
37	Trường ĐH Y tế Công cộng	4	8	5	44	61
38	Trường ĐH FPT	0	14	34	12	60
38	Viện Khoa học Nông nghiệp VN	0	1	0	59	60
39	Trường ĐH Nha Trang	1	4	8	45	58
40	Trường ĐH Lạc Hồng	2	2	0	53	57
40	Trường ĐH Thủ Dầu Một	0	2	2	53	57
41	Trường ĐH Dược Hà Nội	5	8	9	32	54
42	Trường ĐH RMIT Việt Nam	13	24	4	12	53
43	Trường ĐH Việt - Đức	0	18	10	18	46
44	Trường ĐH Xây dựng	2	4	3	33	42
44	Trường ĐH Lâm nghiệp	0	1	0	41	42
45	Trường ĐH Sư phạm Hà Nội 2	5	0	5	30	40
46	Trường ĐH Kinh tế Quốc dân	0	12	4	23	39
47	Trường ĐH Sư phạm Kỹ thuật Hưng Yên	0	6	1	30	37
48	Trường ĐH An Giang	0	7	2	25	34

Table 2: Total number of citations to 2019 publications of the fifty Vietnamese universities with highest output. "0" means the school had publications, but that these have not yet received citations. "--" signals a lack of publications from this school.

The data in Table 2 show that the total number of citations published in 2019 by Ton Duc Thang University and Duy Tan University are much higher than those of the remaining schools. If considering author roles for each publication, one easily sees that for most of the institutions the number of incoming citations to papers written as coauthor is higher than the number of citations for papers written as main authors. Only some schools buck the trend with a large difference, such as Ton Duc Thang University, the University of Transport Technology, and the Ho Chi Minh University of Transport.

Analysis of publication quality

An indicator often used when evaluating journal quality is the Impact Factor (IF), provided by Clarivate's Web of Science scientific database. However, the distribution of IFs is very different between different fields. This is why the IF cannot really be used to evaluate journal quality between different fields, and even less so to evaluate publication quality between different universities, especially between multidisciplinary and specialized schools.

Instead, one should use the journal ranking by field (per quartile or Q). This ranking is currently in use at scientific funding agencies (such as NAFOSTED), and universities use it to evaluate relative publication quality. Large scientific databases like Web of Science or Scopus provide rankings for the journals they index. Web of Science, for example, ranks journals in the same field from high to low based on their IF and then divides them into four groups of identical size. The group of journals with 25% highest IFs are called Q1, the next 25% is Q2, then comes Q3, and finally Q4. The Q journal ranking used by Scopus is similar. For this analysis, we used the Q ranking provided by Scopus (Scimago Lab).

Table 3: Analysis of journal ranking for the publications of each school

Table 3 shows an analysis of the number of articles and articles in press from the top-fifty universities by Q ranking of the journal of publication, while also considering author roles on the papers. The schools are ranked by the total number of papers in first rank. Note that one journal can be ranked in many different fields due interdisciplinarity in science. This is why one and the same journal can be allocated different Q rankings depending on the field. The journal Applied Sciences (ISSN: 2076-3417), for example, is Q1 in Engineering, Q2 in Materials Science, and Q3 in Computer Science according to Scimago 2018. For simplicity we therefore only used the best Q ranking a journal received for this analysis. Furthermore, there are many journals that passed quality review and were included in the Scopus database with index and paper information, but without Q ranking yet; these journals were not included in this analysis.

Table 3 shows most universities have publications in journals of all ranks, with lessening number when going from Q1 to Q4. Only a few schools have no papers in Q4 journals: Dong Thap University, the University of Public Health, the Vietnamese–German University, and Tay Nguyen University. The

distribution shows that the research done at Vietnamese schools is of relatively high quality, with most publications in Q1 or Q2 journals.

A deeper analysis of author roles on the papers shows the following trend: papers written as coauthor have higher proportion than papers written as main author (corresponding author, first author, or both) at most universities, and this is the case throughout all four Q ranks. The disparity is, however, not big in general, except for several institutions like Nguyen Tat Thanh University, Dong Thap University, Lac Hong University, and the Vietnam Academy of Agriculture Sciences. These institutions have several times more papers as coauthor than as main author.

For Ton Duc Thang University, though, the above assessment is not borne out, as the number of papers where its lecturers are main authors is several times higher than the number where they are coauthors, in all four Q ranks. This is a "miracle" of the current picture of Vietnamese scientific research.

Warning about publication in Scopus 'fake' journals

'Predatory' scientific journals, commonly called 'fake' journals, are a pressing problem of our times, with computer technology undergoing booming development. With just a computer, an office, and someone who knows a little about computing, it is possible to create a journal with a publishing procedure identical to that of famous journals and one can publish scientific papers sent in from all over the world. This kind of journal is not only unhelpful for scientists developing their careers, but it can even harm people's prestige and squander the resources of the universities they work at, and by extension of Vietnam.

Mr Jeffrey Beall, a librarian at an American University, created the famous Beall's List listing predatory publishers and journals. The list was welcomed by researchers all over the world; it helps them avoid publishing in these journals. The link to the list is https://beallslist.net.

It is worrisome that, while analyzing the data, we discovered many journals that could be called 'fake' according to Beall's List present in Scopus, and many Vietnamese institutions send them their papers for publication. Several examples are Biointerface Research in Applied Chemistry; the Asian Journal of Chemistry; the Journal of Electrical Engineering; and the International Journal of Learning, Teaching and Educational Research.

We are of the opinion that researchers should verify whether a journal is 'fake' or not, or acquire the skill to detect such journals before sending them one's manuscripts. Scientific management departments at universities should furthermore update and provide training to their staff and lecturers. Only this way can this issue, which troubles science and which many experts have warned about, be abated.

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https://doi.org/10.1073/pnas.0507655102

2019 LIST OF AUTHORS AND GROUPS TO BE AWARDED PRIZES IN SCIENTIFIC RESEARCH IN DANANG

1. 19 (nineteen) authors and groups are considered for prizes for outstanding scientific publications.

TT	Đơn vị công tác		Số tác giả/ nhóm tác giả	Tổng số	Tỷ lệ
1	Trường Đại học Duy Tân		10	10	52.7%
2	Đại học Đà Nẵng	ĐH Bách Khoa	6	9	47.3%
		ĐH Ngoại ngữ	2		
		ĐH Kinh tế	1		

2. 102 (one hundred and two) authors and groups are considered for prizes for scientific publications in prestigious ISI-indexed journals.

(Media Center)