

An Analysis Of Research Performance Of Top Ranked Universities In QS World University Ranking: With Special Reference To Research Gate

Dr. B. Jeyapragash¹, A. Dhanapal²

¹Associate Professor, Department of Library and Information Science,
Bharathidasan University, Tiruchirappalli.

²Ph.D Research Scholar, Department of Library and Information Science,
Bharathidasan University, Tiruchirappalli.

Abstract

This article examines the research activities of universities and faculty members listed in Quacquarelli Symonds World University Rankings (QSWUR) for the year 2020 in which top 50 universities were considered for data collection. The article gives the insight of the research contributions with their respective universities in ResearchGate for the year 2020. The important metrics like publications, citation, h-index, Questions & Answers in ResearchGate were considered for analysis and been tabulated for top 10 universities in this study. The study shows university of Michigan has the highest ResearchGate (RG) Score ((199,704.60) (3.94%)). While University of college of London has the highest number of members ((41,459) (4.63%)) in ResearchGate and University of California, Los Angeles has more publications ((357,177) (4.16%)) among top 10 universities. Professor “Paul Rutland” from University college of London has highest ResearchGate (RG) Score among other researchers and “Robert O Ritchie” from university of California, Berkeley has contributed more number of publications in ResearchGate. This study shows the significant growth in research activities from the top 10 ranked universities of QSWUR 2020.

Keywords: Research Performance, ResearchGate, QS Rankings, QSWUR, ASNS, RG Metrics

1. Introduction

Academic Social Networking sites (ASNS) are gaining popularity among research scholars, academicians, and institutions. ASNS facilitates to attain more visibility and get publication metrics on research publications and also online presence is become mandatory for every research scholar. ResearchGate and Academia.edu are predominantly used ASNS by the scholars. These research tools are allow user to communicate, share, collaborate, follow and discuss about continuing research status among peers and usage of these tools have been

increasing on regularly. Hence, many of the higher education and R&D department has started to share their published and unpublished research papers and more research related document on these networking sites to harvest highest metrics on respective research fields. This paper analyzed the research contributions and utilization of top ranked 50 universities of Quacquarelli Symonds World University Rankings (QSWUR) in ResearchGate and also analyzed the ResearchGate (RG) Score, Members, and their Publications in ResearchGate.

2. ResearchGate

ResearchGate is the professional network for scientists and researchers. Over 19 million members from all over the world use it to share, discover, and discuss research. It was founded in 2008 by physicians Dr. Ijad Madisch and Dr. Sören Hofmayer, and computer scientist Horst Fickenscher, ResearchGate has more than 19 million members as on today. ResearchGate is an effective tool to share, connect and collaborate with peers, colleagues and specialists. In ResearchGate the Question & Answer platform helps the researchers to resolve their research problems and to get up-to-date information on their research areas.

3. Review of Literature

Thelwall, M. & Kousha, K. (2015) examined that academics use ResearchGate to build profiles, preserve their papers, and communicate with others in their professions. Brazil and India, rather than China and South Korea, are the most active users of ResearchGate. Muscanell, N., & Utz, S. (2017). Studied that, how researchers use ResearchGate (RG), a social networking site where they may share their work and improve their reputations. The authors looked at how academics use the site, what they think about its utility, and how usage affects career outcomes in a sample of mostly American and European academics. Balasubramani, Jeyapragash and Thangavel, Rajkumar, (2019) The research contributions and utilizations of Indian central universities in ResearchGate were examined, and it was discovered that the University of Delhi and Banaras Hindu University are heavily using RG and receiving high RG metrics. It was also suggested that less active central universities share their publications in ResearchGate to acquire more institutional visibility. B. Jeyapragash, T. Rajkumar, A. Muthuraj, (2018) examined that two hundred and eighty-one state universities in India had Institutional ResearchGate profiles and analyzed the state-by-state university profiles and their contributions to ResearchGate and discovered that Tamil Nadu has a higher number of members and publications than other states, while Tripura has the lowest contributions. Megwalu, A. (2015) examined that ResearchGate is a scholarly interpersonal interaction site, planned stringently for scholars. The site permits scholars to examine their subjects of interests, interface with different analysts, and offer their distributed and unpublished academic work like articles, meeting introductions, and different media documents. Altmetrics are acceptable measures for scholar's work.

4. Objectives of the Study

The following are the major objectives of the study

- a) To find out the ResearchGate (RG) score, memberships, and publications of Top 50 ranked universities of QS World University Ranking 2020 in ResearchGate.
- b) To identify the ResearchGate (RG) score, memberships and publications wise of top ten universities of QS World University Ranking 2020 in ResearchGate.
- c) To identify the ResearchGate profiles of top ten members of top ten QS World University Ranking 2020.
- d) To analyze the various types of research contributions by top ten members of selected Universities.

5. Research Methodology

The study data has been extracted manually from the website of ResearchGate (<http://researchgate.net/>) during December 2020. The study has considered only highly performing QS Ranked Universities, 1069 Universities were received the QS ranking, this study focused top 50 ranked universities and their contributions in the ResearchGate. Further, it is analyzed based on the ResearchGate indicators such as ResearchGate RG Score, Members, and Publications. The collected data were analyzed using simple calculations with percentage and ranking method were also used.

6. Data Analysis

The data were analyzed using simple calculations with percentage and ranking method.

6.1. Research Contributions and Memberships of Top 50 Universities of QS World University Ranking 2020

The study has analyzed the research contributions and memberships of Top 50 universities and the same is given in Table 1

Table 1: Research Contributions and Memberships of Top 50 Universities of QS World University Ranking 2020

Sl. No	University	QS Rank 2020	Location	RGS	(%)	M	(%)	P	(%)
1	Massachusetts Institute of Technology (MIT)	1	United States	105,662.23	2.08	12,449	1.39	226,537	2.64
2	Stanford University	2	United States	175,391.80	3.46	16,932	1.89	298,810	3.48
3	Harvard University	3	United States	113,583.52	2.24	16,444	1.83	318,354	3.71

4	University of Oxford	4	United Kingdom	171,364.31	3.38	21,016	2.35	246,310	2.87
5	California Institute of Technology (Caltech)	5	United States	48,819.93	0.96	3,553	0.4	120,717	1.41
6	ETH Zurich - Swiss Federal Institute of Technology	6	Switzerland	94,386.91	1.86	12,848	1.43	83,113	0.97
7	University of Cambridge	7	United Kingdom	151,791.08	2.99	22,440	2.5	245,957	2.87
8	UCL (University College of London)	8	United Kingdom	180,305.12	3.56	41,459	4.63	208,473	2.43
9	Imperial College London	9	United Kingdom	141,997.70	2.8	22,003	2.46	202,703	2.36
10	University of Chicago	10	United States	65,193.57	1.29	9,997	1.12	159,740	1.86
11	Nanyang Technological University, Singapore (NTU)	11	Singapore	78,501.25	1.55	17,403	1.94	92,064	1.07
12	National University of Singapore (NUS)	11	Singapore	88,278.01	1.74	22,248	2.48	141,739	1.65
13	Princeton University	13	United States	40,809.50	0.8	5,904	0.66	118,432	1.38
14	Cornell University	14	United States	80,912.56	1.6	13,467	1.5	206,830	2.41
15	University of Pennsylvania	15	United States	141,297.97	2.79	16,179	1.81	206,418	2.41
16	Tsinghua University	16	China (Mainland)	127,582.98	2.52	25,212	2.81	154,085	1.8
17	Yale University	17	United States	125,082.60	2.47	11,926	1.33	203,719	2.37
18	Columbia University	18	United States	136,780.45	2.7	23,421	2.61	229,717	2.68
19	EPFL	18	Switzerland	62,298.19	1.23	7,883	0.88	54,080	0.63

20	The University of Edinburgh	20	United Kingdom	103,289.83	2.04	25,735	2.87	149,390	1.74
21	University of Michigan	21	United States	199,704.60	3.94	24,196	2.7	291,442	3.4
22	Peking University	22	China (Mainland)	96,028.81	1.89	23,507	2.62	119,138	1.39
23	The University of Tokyo	22	Japan	95,447.95	1.88	10,099	1.13	347,614	4.05
24	Johns Hopkins University	24	United States	91,886.83	1.81	13,915	1.55	245,272	2.86
25	Duke University	25	United States	78,284.58	1.54	10,530	1.17	156,251	1.82
26	The University of Hong Kong	25	Hong Kong SAR	64,263.03	1.27	18,118	2.02	154,438	1.8
27	The University of Manchester	27	United Kingdom	121,889.78	2.4	34,567	3.86	185,529	2.16
28	University of California, Berkeley (UCB)	28	United States	110,848.43	2.19	21,386	2.39	273,630	3.19
29	The Australian National University	29	Australia	58,215.96	1.15	11,341	1.27	104,496	1.22
30	University of Toronto	29	Canada	185,002.16	3.65	35,181	3.93	330,966	3.86
31	Northwestern University	31	United States	108,461.58	2.14	12,416	1.39	173,674	2.02
32	The Hong Kong University of Science and Technology	32	Hong Kong SAR	29,585.82	0.58	7,391	0.82	43,449	0.51
33	King's College London	33	United Kingdom	118,086.71	2.33	31,955	3.57	114,047	1.33
34	Kyoto University	33	Japan	78,664.22	1.55	7,185	0.8	237,701	2.77
35	McGill University	35	Canada	128,632.84	2.54	21,406	2.39	181,811	2.12
36	University of California, Los Angeles (UCLA)	35	United States	154,938.20	3.06	21,548	2.4	357,177	4.16

37	Seoul National University	37	South Korea	78,751.61	1.55	14,204	1.58	139,554	1.63
38	The University of Melbourne	38	Australia	116,149.03	2.29	29,036	3.24	172,312	2.01
39	New York University (NYU)	39	United States	61,227.13	1.21	18,907	2.11	46,925	0.55
40	Fudan University	40	China (Mainland)	87,256.14	1.72	16,203	1.81	102,133	1.19
41	KAIST - Korea Advanced Institute of Science & Technology	41	South Korea	42,557.51	0.84	6,687	0.75	59,967	0.7
42	The University of Sydney	42	Australia	123,626.09	2.44	25,376	2.83	182,148	2.12
43	The University of New South Wales (UNSW Sydney)	43	Australia	103,894.85	2.05	21,014	2.34	136,487	1.59
44	The London School of Economics and Political Science (LSE)	44	United Kingdom	15,901.74	0.31	11,583	1.29	32,141	0.37
45	University of California, San Diego (UCSD)	45	United States	142,028.28	2.8	17,053	1.9	196,389	2.29
46	The Chinese University of Hong Kong (CUHK)	46	Hong Kong SAR	54,078.04	1.07	12,701	1.42	77,416	0.9
47	The University of Queensland	47	Australia	121,675.89	2.4	21,282	2.37	147,874	1.72
48	Carnegie Mellon University	48	United States	35,389.34	0.7	8,006	0.89	89,741	1.05
49	University of Bristol	49	United Kingdom	73,882.78	1.46	22,117	2.47	125,643	1.46
50	Delft University of Technology	50	Netherlands	61,488.55	1.21	18,765	2.09	86,982	1.01

TOTAL	5,071,177.99	100	896,194	100	8,579,535	100
--------------	---------------------	------------	----------------	------------	------------------	------------

*RGS - ResearchGate Score *M – Membership * P - Publications

Table 1 shows, the list of 50 universities which were ranked as top institutions around the globe in the year 2020 by QS World University Ranking and this study analyses their research activities at ResearchGate. Top institutions were gained ResearchGate (RG) Score of (5,071,177.99) as cumulative. These institutions have registered a good number of memberships (896,164) and also contributed (8,579,535) publications in ResearchGate. ResearchGate (RG) Score of top ranked universities ranged between 3.06 % and 3.94 % for 6 universities and followed 19 universities ranged between 2.04 % and 2.99 % and 19 universities ranged between 1.07 % and 1.89 %. All other remaining universities ranged between 0.31 % and 0.96 %. Table 1 also shows, five of top 50 universities has registered their memberships in researchGate which ranged between 3.24 % and 4.63% and nineteen of top 50 universities registered their memberships which ranged between 2.02 % and 2.87 % and Nineteen of top 50 universities ranged between 1.12 % and 1.94 %. Publications by top ranked universities in ResearchGate (85, 79,535) seven universities research publications ranged between 3.19 % and 4.16 %, Seventeen universities publications ranged between 2.01 % and 2.87 %, nineteen universities ranged between 1.01 % and 1.86 % and seven universities publications ranged between 0.37 % and 0.97 %. It is inferred that those universities have lesser ResearchGate (RG) score, Membership and publications could contribute more research activities in researchgate and it gives more research visibility and to get more citations and this enables collaborations among the research community.

6.2. ResearchGate (RG) Score Wise Top Ten Universities

The study has analyzed the researchGate (RG) Score wise of Top 10 Universities and the same is given in Table 2.

Table 2: ResearchGate (RG) Score wise Top Ten Universities

Sl. No	University	Location	RG Score	%	Rank
1	University of Michigan	United States	199,704.60	12.15	1
2	University of Toronto	Canada	185,002.16	11.25	2
3	UCL (University College of London)	United Kingdom	180,305.12	10.97	3
4	Stanford University	United States	175,391.80	10.67	4
5	University of Oxford	United Kingdom	171,364.31	10.42	5
6	University of California, Los Angeles (UCLA)	United States	154,938.20	9.43	6
7	University of Cambridge	United Kingdom	151,791.08	9.23	7

8	University of California, San Diego (UCSD)	United States	142,028.28	8.64	8
9	Imperial College London	United Kingdom	141,997.70	8.64	8
10	University of Pennsylvania	United States	141,297.97	8.60	10
TOTAL			1,643,821.22	100.00	

Table 2 shows that the ResearchGate (RG) score wise top ten QS Ranked universities. It clearly shows that the “University of Michigan” has highest score of 199,704.60 (12.15%) RG score and placed in first rank. It is followed by “University of Toronto” has 185,002.16 (11.25%), “University College of London” 180,305.12 (10.97%), “Stanford University” 175,391.80 (10.67%) RG scores and “University of oxford” 171,364.31(10.42) occupied second, third, fourth and fifth rank. It is inferred that only five universities has more than 10% RG scores in ResearchGate.

6.3 Memberships Wise Top Ten Universities

The study has analyzed the Membership Wise of Top 10 universities and the same is given in Table 3.

Table 3: Memberships wise Top Ten Universities

Sl. No	University	Location	Members	%	Rank
1	UCL (University College of London)	United Kingdom	41,459	14.00	1
2	University of Toronto	Canada	35,181	11.88	2
3	The University of Manchester	United Kingdom	34,567	11.67	3
4	King's College London	United Kingdom	31,955	10.79	4
5	The University of Melbourne	Australia	29,036	9.80	5
6	The University of Edinburgh	United Kingdom	25,735	8.69	6
7	The University of Sydney	Australia	25,376	8.57	7
8	Tsinghua University	China Mainland)	25,212	8.51	8
9	University of Michigan	United States	24,196	8.17	9
10	Peking University	China Mainland)	23,507	7.94	10
TOTAL			296,224	100.00	

Table 3 explains that the memberships wise top ten QS ranked universities. It shows that the “University College of London” has good number of 41,459 (14.00 %) memberships in

ResearchGate and placed in first rank. It is followed by “University of Toronto” has 35,181 (11.88%) memberships and occupied second rank. It is found that the “The University of Manchester” has 34,567 (11.67%), “King’s College London” 31,955 (10.79%) and “The university of Melbourne” has 29,036 (9.80%) memberships in ResearchGate and placed in third, fourth and fifth ranks. It is inferred that the “Peking University” has low percentage 23,507 (7.94%) memberships in ResearchGate. Hence, it is recommended that who scored less than 10 % should come forward to register their memberships in ResearchGate respectively.

6.4 Publications Wise Top Ten Universities

The study has analyzed the publications wise Top 10 Universities of Top QS ranked universities and the same is given in Table 4.

Table 4: Publications Wise Top Ten Universities

Sl. No	University	Location	Publications	%	Rank
1	University of California, Los Angeles (UCLA)	United States	357,177	12.09	1
2	The University of Tokyo	Japan	347,614	11.76	2
3	University of Toronto	Canada	330,966	11.20	3
4	Harvard University	United States	318,354	10.77	4
5	Stanford University	United States	298,810	10.11	5
6	University of Michigan	United States	291,442	9.86	6
7	University of California, Berkeley (UCB)	United States	273,630	9.26	7
8	University of Oxford	United Kingdom	246,310	8.33	8
9	University of Cambridge	United Kingdom	245,957	8.32	9
10	Johns Hopkins University	United States	245,272	8.30	10
TOTAL			2,955,532	100	

Table 4 shows that the “University of California” has highest number of 357,177 (12.09%) publications in ResearchGate and placed in first rank. It is followed by “The University of Tokyo” has 347,614 (11.76%) and “University of Toronto” 330,966 (11.20%) publications and occupied second and third rank. It is found that the “Harvard University” has 318,354 (10.77%), “Stanford University” 298,810 (10.11%), publications in ResearchGate and placed in fourth and fifth ranks. It is inferred that last five universities has less than 10% contribution and the first five universities were contributed 55% publications in ResearchGate. This study also

recommended that the other universities and departments should contribute their research publications in ResearchGate respectively.

6.5. Membership Wise Top Ten Universities

The study analyzed that the ResearchGate Profile of top ten members of Top QS Ranked Universities.

Table 5: ResearchGate Profiles of Top Ten members

Sl. No	Name	Position	Department	University	RG Score	Research Interest	Recommendations	Read	h-Index	Project	Following	Followers	Questions	Answers
1	Paul Rutland	Professor	Institute of Child Health	UCL (University College of London)	446.68	2378	3835	440821	27	7	25	899	3	3354
2	Kelvyn Jones	Professor	Geographical Sciences	University of Bristol	355.68	9536	3644	1027899	49	0	1491	2186	5	1969
3	Robert O Ritchie	Professor	Materials Science and Engineering	University of California, Berkeley	161.63	29062	2790	263589	105	17	193	3353	1	213
4	Refik Kanjhan	Associate Professor	Bio Medical Sciences	The University of Queensland	142.01	1665	1670	129800	23	4	1588	773	13	837
5	Yehia F. Khalil	Faculty Member	Chemical & Environmental)	Yale University	139.09	594.3	996	115569	10	37	93	645	0	847
6	James Leigh	Senior Research Consultant	Asbestos Diseases Research Institute	The University of Sydney	136.72	33631	2125	272011	50	3	109	636	1	654

7	Gregory Dressler	Professor	Pathology	University of Michigan	130.26	5657	573	115583	53	1	29	359	1	494
8	Jonathan Edwards	Professor Emeritus	Medicine	UCL (University College of London)	121.99	6664	1445	55265	55	0	14	573	5	1361
9	Isaac Dinaharan	Post Doc Position	Mechanical Engineering	Tsinghua University	111.15	2327	1352	130003	31	1	410	832	4	697
10	Mah Parsa	Researcher	Computer Science	University of Toronto	102.49	564.1	883	92637	8	8	89	902	1	947

Table 5 shows that the ResearchGate profiles in top ten members of top QS ranked universities. It clearly shows that Professor “Paul Rutland” “Department of Institute of Child Health, University college of London” has highest score of (446.68) RG score and placed first position in ResearchGate. It is followed by Professor “Kelvyn Jones”, “Department of Geographical Sciences, University of Bristol” has (335.68) RG score and occupied second position. It is observed that the RG score by the remaining professors are found less and score ranges from 161.63 to 102.49. Professor “Robert O Ritchie” “Department of Materials Science and Engineering, University of California Berkeley” has highest number of 105 h-index in ResearchGate than other universities and placed in first position. It is followed by Professor Emeritus “Jonathan Edwards” “Department of Medicine, University College of London” has 55 H-Index in ResearchGate and placed in second position. It is observed that the H-Index by the researcher “Mah Parsa” has less H-Index. The result of the study are clearly indicates that the overall H-Index is very good in ResearchGate. It is recommended that participating professors should be encouraged to contribute their research in Research Gate.

6.6. Various types of documents contributed by Top Ten members

The study analyzed that the ResearchGate Profile of top ten members of Top QS Ranked Universities.

Table 6: Various types of documents contributed by of Top Ten members

Sl. No	Name	Designation	Department	Article	Book	Chapter	Conference Paper	Thesis	Patent	Data	Technical Report	Research	Research Proposal	Working Paper	Method	Raw Data	Experimental	Presentation	poster	Preprint	Code
1	Robert O Ritchie	Professor	Materials Science and Engineering	797	4	35	54	0	0	64	0	0	0	0	0	0	0	0	1	5	0
2	James Leigh	Consultant	Asbestos Diseases	207	1	20	34	4	0	58	5	9	0	0	0	1	0	0	0	0	0

			Research Institute																		
3	Kelvyn Jones	Professor	Geographical Sciences	200	11	13	5	0	0	23	0	1	0	0	0	0	0	4	0	0	0
4	Jonathan Edwards	Professor Emeritus	Medicine	196	0	22	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Gregory Dressler	Professor	Pathology	124	0	6	1	0	1	15	0	0	0	0	0	0	0	0	0	0	0
6	Isaac Dinaharan	Post Doc	Mechanical Engineering	106	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Mah Parsa	Researcher	Computer Science	65	0	0	25	4	0	5	0	0	0	0	0	0	0	0	7	13	0
8	Yehia F. Khalil	Faculty	Chemical & Environmental Engineering.	64	0	2	37	0	11	10	12	3	0	0	0	0	0	0	16	0	0
9	Paul Rutland	Laboratory Manager	Institute of Child Health	52	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
10	Refik Kanjhan	Associate Professor	Biomedical sciences	39	0	1	38	2	0	11	1	0	0	1	0	0	0	0	0	0	0

It is found from Table 6 various types of research contributions by top ten members of top QS Ranked Universities. It clearly shows that the Professor “Robert O Ritchie” “Department of Materials Science and Engineering” has highest number of 797 Articles and 54 conference papers with other publications contributed in ResearchGate. It is followed by Consultant “James Leigh” “ Department of Asbestos Diseases research institute” has 207 Articles, 34 conference papers and Professor “Kelvyn Jones” “Department of Geographical Sciences” has 200 Articles and 23

Data with other publications contributed in ResearchGate. It is inferred that the other professors and article contributions is less than 200. It is observed that the remaining researchers should contribute more research publications at researchgate to gain more research visibility.

7. Conclusion

The higher education institutions have been doing more research in their respective fields and the results are being shared by traditional platforms. Now publishing scenario has been influenced by Academic Social Networking Sites and its allowing scholars to share, connect and gain more research visibility and in turn this will help the institutions and research scholars to get funding and more collaborations. Now slowly Institutions are started to contribute research publications in Academia.edu and ResearchGate. The researchgate is allowing to create profiles, to share publications and to get metrics such as, RG Score, reads, citations, etc. So this study analyzed the research contributions and utilization of QS top ranked universities in ResearchGate. The study recommends that the Carnegie Mellon University, California Institute of Technology (Caltech) and KAIST - Korea Advanced Institute of Science & Technology should contribute more number of research publications to get more research visibility in ResearchGate.

References

- About. (2020, December 24). Retrieved from <https://www.researchgate.net/>
- Balasubramani, Jeyapragash and Thangavel, Rajkumar, (2019) Research Contributions and Utilization of ResearchGate by Central Universities in India: An Analytical Study. Library Philosophy and Practice (e-journal). 2985.
- B. Jeyapragash, T. Rajkumar, A. Muthuraj, (2018) Research Contributions of Indian Universities in ResearchGate: An Analysis . Journal of Advances in Library and Information Science, Vol.7, No 1. Jan-Mar. 2018, pp-01-06.
- Megwalu, A. (2015). ResearchGate: an academic social networking site. The Charleston Advisor, 17(1), 47-51.
- Muscanell, N., & Utz, S. (2017). Social networking for scientists: An analysis on how and why academics use Research Gate. Online Information Review, 41(5), 744-759. doi:10.1108/oir-07-2016-0185.
- Ovadia, S. (2014). ResearchGate and Academia.edu: Academic social networks. Behavioral & Social Sciences Librarian, 33(3), 165-169. doi:10.1080/01639269.2014.934093.
- QS Ranking list. (2020, December 01) www.topuniversities.com/university-rankings/world-university-rankings/2020.
- Thelwall, M., & Kousha, K. (2014). ResearchGate: Disseminating, communicating, and measuring scholarship? Journal of the Association for Information Science and Technology, 66(5), 876-889. doi:10.1002/asi.23236.