

QPS metric of your photo-stream on flickr, version 5 Noel Zinn, 2 March 2023

QPS Defined

The QPS (Quality, Popularity, Strategy) metric is defined as:

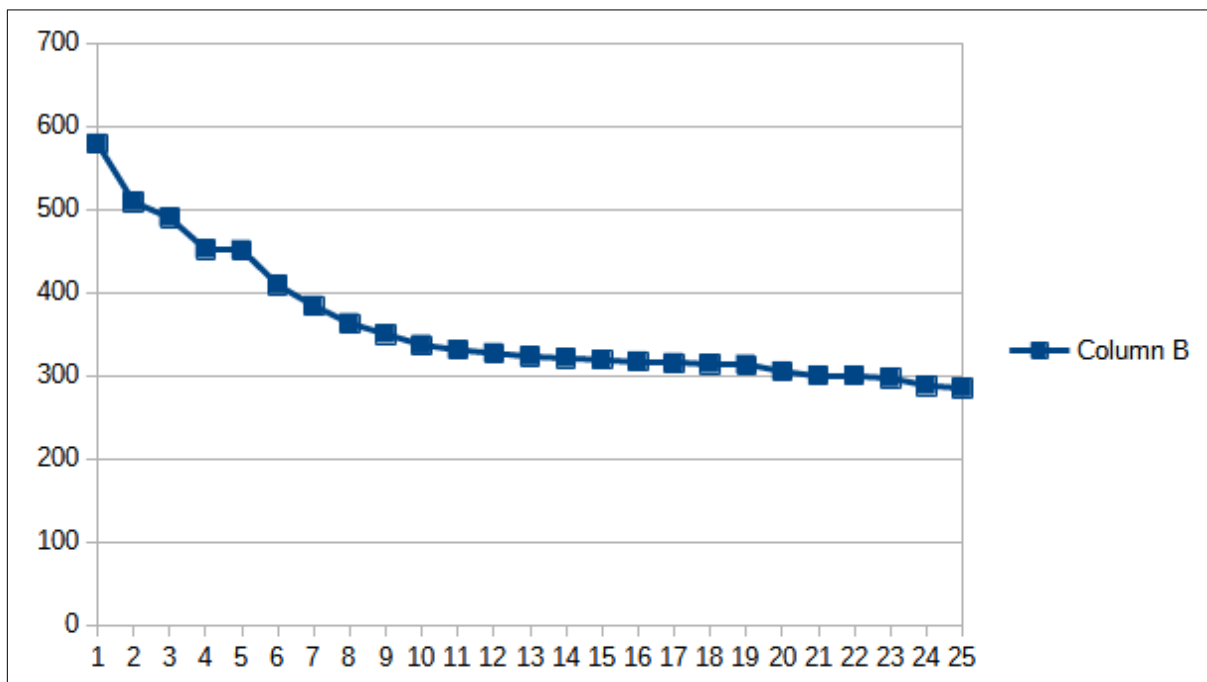
$$\text{QPS} = \text{\#faves_on_the_25th_most_popular_photo} / \text{sqrt}(\text{sqrt}(\text{years}))$$

This metric applied to any photo stream on flickr allows one to simply and quickly assess the combined quality, popularity and strategy of the responsible photographer independently of their length of usage. All other things being equal, the metric should be constant whether the photographer has been posting for 4 years, 8 years or 12 years, for example. “All other things” are discussed in the derivation.

QPS Derivation

The metric I’ve informally used in the past to assess one’s “standing” in flickr is the number of faves given to the 25th most popular photograph found in the “About” tab/page of flickr. Also found on that page is the date you joined flickr, important information for the “normalization” of the 25th most popular metric, which creates the time-invariant QPS metric, *ceteris paribus*.

Quality (or “interestingness” in the Explore algorithm) is admittedly subjective. Popularity can be assessed with faves. But the faves themselves are a result (in addition to quality) of the way one “plays” flickr, one’s strategy, and there are many strategies. The QPS metric is the combination of these factors over time that can assess and compare flickr users regardless of the length of their flickr usage. Some caveats are discussed later, but first the derivation of QPS.



The chart above shows the number of faves on my 25 most-popular photos. It’s steep on the high end, relatively flat in the middle (which will turn out to be useful), and a bit slanted on the low end. I’ve

used flickr for 3.5 years, 70 of my photos have been Explored. All 25 above are Explored photos. Say I get 700 faves on my next Explore. The number of faves on the 25th most popular photo will hardly change. Thus, the 25th most popular metric is a useful, stand-alone, relatively-stable “quality” metric. For me it’s 285 today.

But what will the 25th most popular metric be after 7 years as a flickr user (twice as long)? Well, if the quality of my photography is the same, and the taste of my followers is the same, and I post at the same rate, then the 25th most popular metric after 7 years will be the same as today’s photo in position 13 with 12 photos ahead of it and 12 photos behind it. For me it’s expected to be 323 after 7 years. It will increase because more photos are out there. But we want a metric that’s independent of length of flickr usage. That’s QPS. We want to multiply (or divide) today’s 25th most popular metric by some function of years of usage that will provide a consistent metric for 3.5 years and 7 years.

Here’s the formula for my case: $285/3.5^x = 323/7^x$. So, what’s the exponent x? With a little math it turns out to be $x = \ln(323/285) / \ln(2)$, where “ln” is the natural logarithm. In my case x is 0.181. So, for me alone the normalized metric is $285 / 3.5^{0.181} = 323 / 7.0^{0.181} = 227$. That number (227) is expected to be consistent for the duration of my flickr usage, but only if I don’t get better or worse, if my follower base doesn’t change, if the taste of my follower base doesn’t change, if Explore doesn’t change its algorithm, and so on. These are some of the “all other things being equal” required for consistency.

I’ve run this computation on the 25th and 13th most popular photos and elapsed years of sixty folks given on the last page of this paper (numbers 1 through 60). Sorry, it’s an image of a spreadsheet (you can’t copy the data), but I’ll explain the numbers as you follow along. And, if you’re a real nerd, you can develop your own numbers from your own followers, or anyone.

The first column provides a numeric identifier for sixty flickr users.

The second column is the number of faves on the 25th most popular photo in the “about” tab/page of every flickr user. A common question is, “What about views?”. Well, views are an important metric, but they’re passive. Faves are active. I’ve gone with faves. Furthermore, the 25 most popular photos are organized by faves, so flickr agrees with me.

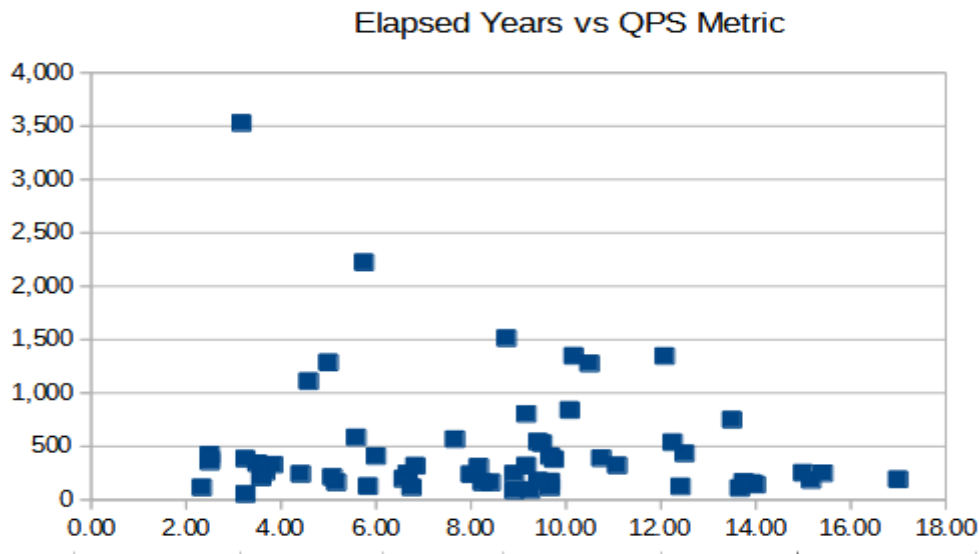
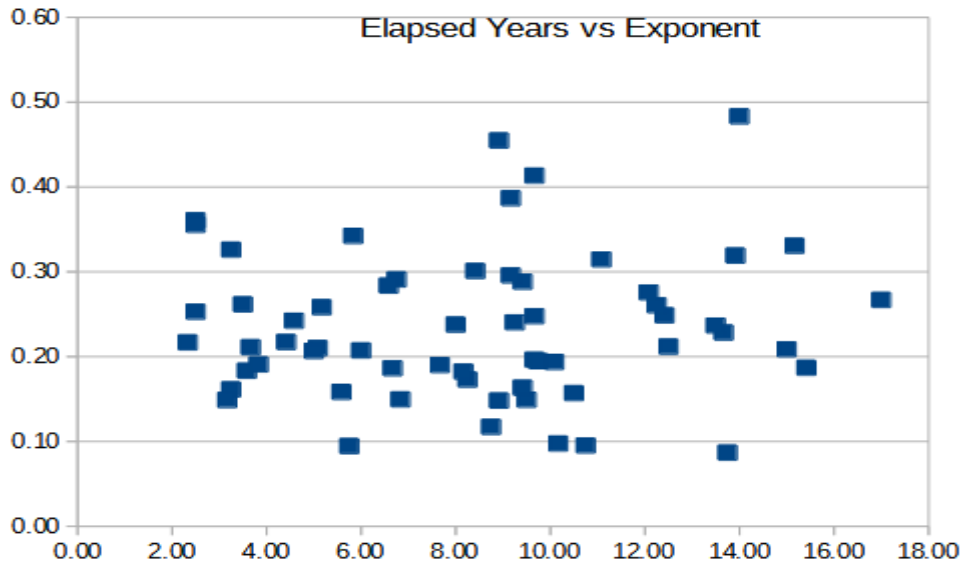
The third column is the number of faves on the 13th most popular photo in the “about” tab/page of every flickr user, which is used later.

The fourth column is the exponent “x” derived with the formula with natural logarithms (ln) given above. The only inputs to this formula are the number of faves on the 25th and 13th most popular photos. Notice (below on the last page) that the average exponent x is 0.23 with a standard deviation of 0.09. There is some variation here and it is interesting to speculate why (in another paper, perhaps). I deleted four users with an x more than 3 standard deviations from the mean. The QPS metric is defined with an exponent $x = 0.25$ for computational simplicity, well within the standard deviation of x (0.09). Any number to an exponent of 0.25 is the square root of the square root of that number, easy to implement on a calculator with a square root key.

Columns 5 and 6 are the month and year of joining flickr, also available on the “about” tab/page of every flickr user. Column 7 is the elapsed years of flickr usage, important information for the normalization process so that the QPS metric is stable over time.

Column 8 is an interesting metric, it's the number of faves on the 25th most popular photo divided by elapsed years raised to the (individual's) exponent x . Now, computing x is tedious involving logarithms and the number of faves on the 13th most popular photo. And your calculator has to have a power key that is only common on scientific calculators, and you have to know how to use it. So, this column is just here as a curiosity.

Column 9 is (finally) the QPS metric, the number of faves on the 25th most popular photo divided by the square root of the square root of elapsed years. A couple plots may be interesting:



The mix of Explored and non-Explored photos in the top 25 is a factor. With this in mind, all users in this study have more than 2 years with flicker. Even with all Explored photos, the “donkey”, especially Explore rank, is a factor. The number of your followers is an issue. Groups and tags are issues. What about the Showcase section of the “About” page, perhaps what the user regards as their best? None of this is simple to quantify, and it isn't! Anyway, here's the (simple) QPS metric. Have fun with it!

Person #	25 th popular	13 th popular	exponent (x)	month join	year join	elapsed (yr)	#25 / yr ^x	#25 / yr ^{0.25} QPS Metric
1	71	89	0.33	11	19	3.25	48	53
2	148	164	0.15	3	14	8.92	107	86
3	160	189	0.24	11	13	9.25	94	92
4	210	246	0.23	6	9	13.67	116	109
5	142	165	0.22	10	20	2.33	118	115
6	205	273	0.41	6	13	9.67	80	116
7	188	230	0.29	5	16	6.75	108	117
8	234	278	0.25	9	10	12.42	125	125
9	198	251	0.34	4	17	5.83	108	127
10	274	383	0.48	2	9	14.00	77	142
11	303	378	0.32	3	9	13.92	131	157
12	276	340	0.30	9	14	8.42	145	162
13	245	293	0.26	12	17	5.17	160	163
14	275	310	0.17	11	14	8.25	191	162
15	323	343	0.09	5	9	13.75	257	168
16	302	346	0.20	6	13	9.67	193	171
17	312	381	0.29	9	13	9.42	163	178
18	365	459	0.33	12	7	15.17	149	185
19	389	468	0.27	2	6	17.00	183	192
20	313	381	0.28	7	16	6.58	183	195
21	288	327	0.18	7	19	3.58	228	209
22	319	369	0.21	1	18	5.08	227	212
23	351	408	0.22	9	18	4.42	254	242
24	402	474	0.24	2	15	8.00	245	239
25	421	577	0.45	3	14	8.92	156	244
26	392	446	0.19	6	16	6.67	275	244
27	492	560	0.19	9	7	15.42	295	248
28	495	572	0.21	2	8	15.00	281	252
29	362	419	0.21	6	19	3.67	275	262
30	520	590	0.18	12	14	8.17	355	308
31	554	680	0.30	12	13	9.17	288	318
32	513	569	0.15	4	16	6.83	385	317
33	587	730	0.31	1	12	11.08	275	322
34	460	525	0.19	4	19	3.83	356	329
35	468	561	0.26	8	19	3.50	337	342
36	449	535	0.25	8	20	2.50	356	357
37	672	769	0.19	5	13	9.75	432	380
38	479	615	0.36	8	20	2.50	344	381
39	516	577	0.16	11	19	3.25	427	384
40	704	752	0.10	5	12	10.75	562	389
41	721	856	0.25	6	13	9.67	411	409
42	641	740	0.21	2	17	6.00	442	410
43	530	678	0.36	8	20	2.50	383	421
44	816	945	0.21	8	10	12.50	478	434
45	928	1029	0.15	8	13	9.50	663	529
46	1006	1205	0.26	11	10	12.25	524	538
47	952	1066	0.16	9	13	9.42	660	543
48	945	1078	0.19	6	15	7.67	642	568
49	897	1001	0.16	7	17	5.58	683	584
50	1437	1693	0.24	8	9	13.50	776	750
51	1399	1829	0.39	12	13	9.17	594	804
52	1497	1712	0.19	1	13	10.08	957	840
53	1625	1922	0.24	7	18	4.58	1,124	1,111
54	2298	2562	0.16	8	12	10.50	1,589	1,277
55	1923	2219	0.21	2	18	5.00	1,379	1,286
56	2405	2573	0.10	12	12	10.17	1,919	1,347
57	2509	3037	0.28	1	11	12.08	1,263	1,346
58	2602	2822	0.12	5	14	8.75	2,018	1,513
59	3443	3676	0.09	5	17	5.75	2,919	2,223
60	4706	5217	0.15	12	19	3.17	3,965	3,528
AVERAGE			0.23			8.39		
STD DEV			0.09			3.84		