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Measuring Influence on Twitter

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Abstract

A survey of MAT 1372 student opinions on twitter showed many people[1] (>90%) would suppose that if a Twitter account has more followers, then it will receive more likes or replies; however, accounts can buy followers, and followers do not necessarily mean engagement. In this paper, we used Twitter because is a major player in social media, but we can measure influence without using the Twitter's follower count. A previous article called "The Million Follower Fallacy" by Meeyoung Cha [2], with a group of researchers from the Max Plank Institute in Germany have demonstrated that the Twitter follower count is a meaningless metric in determining influence.

In order to measure influence, a new metric was developed which is what we call The User Ratio. We got the idea from Paul O'Neil Esquire's article [3] regarding "the Twitter Ratio." The author describes that the formula can be used to measure the positive impact of an individual tweet. Therefore, we averaged a sample of individual ratios for many accounts to determine the User Ratio's value for each account and every account's positive influence. The data collected in our MAT 1372 Project experiments[1] showed that the accounts with the most influence are the ones with a higher User Ratio number (Table 1); otherwise, the accounts with the least influence are the ones with a low User Ratio number (Table 2). Contrary of what have been often assumed, in this paper it has been tested that accounts like politicians and corporate accounts have many followers do not indicate influence.

Methodology

A. How we Measured Influence

According to the Merriam-Webster dictionary defines influence [4] as "the power or capacity of causing an effect in indirect or intangible ways." In this paper, we used statistical properties to study influence, how influence can be measured and how influence worked for the 80 accounts we collected. To be able to see the influence of users, we did not use any Twitter account that has few tweets, but we used "active users" who receive a certain amount of likes and replies daily.

To measure influence, we used an average of Paul O'Neil's [3]twitter ratio:

Twitter Ratio = A tweet's Likes / A tweet's Replies

We used the Twitter Ratio and adapted the formula to an entire account by finding the average of a sample of many such ratios (n=50+) and called it the User Ratio. Instead of using a minimal number of accounts, we used more than 80 accounts to prove that popular accounts might not always have a better influence on their followers.

B. Why We Can't Use Followers To Measure Influence

Twitter accounts can buy followers, and followers do not necessarily mean engagement. Also, the content shared by any Twitter account might not have influence with its audience, even though it has a large number of followers. This analysis has already been done by Meeyoung Cha in her controversial paper [2] "Measuring User Influence in Twitter: The Million Follower Fallacy," who has demonstrated with a group of researchers that [2] "users who have high indegree are not influential in terms of spawning retweets or mentions."

Results and Conclusion

Verifying User Ratio is NOT affected by Followers

A scatter diagram (Figure I) was created comparing our User Ratio to Followers, and the correlation coefficient (r = 0.034509) was calculated. This very low correlation verifies that the User Ratio is not another follower's metric. Our findings indicate that, in effect, accounts like politicians and corporate accounts have many followers; although, their influence with their audiences is low compared to other accounts. For instance, accounts like Lily Singh, Bad Bunny and Serena Williams have shown below in the (Figure 1) that they have a higher User Ratio compared to other accounts such as Barack Obama, Justin Bieber, Donald Trump, and many more that have a high Twitter follower count.

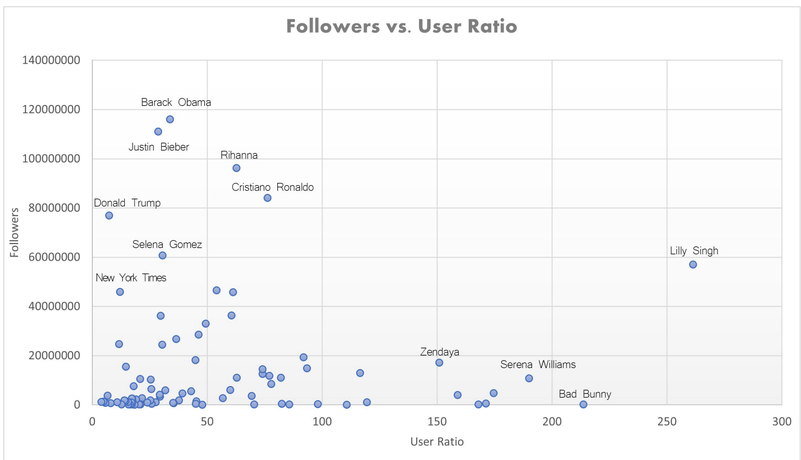

Figure 1. Scatter Diagram comparing the number of Followers and User Ratio

User Ratio Rankings: Which Accounts Have the Most Influences!

The data collected in the experiment showed that the accounts with the most influence are the ones with a higher User Ratio number (Table 1.); otherwise, the accounts with the least influence are the ones with a low User Ratio number.

Table 1

Top Ten Accounts That Have the Most Influence

Account	User Ratio	Followers
Lilly Singh	261.3626	57000000
BadBunny	213.63	187200
Serena Williams	190.03	10800000
David Dobrik	174.6	4800000
Reggie	171.233	521500
Savage X Fenty	168	136344
Marvel Studio	158.94	4000000
Zendaya	151.013	17200000
Super Junior	119.5382	1118553
Jeff Bezos	116.4743	13000000

Note. This table shows the high influence measured by User Ratio and includes the Followers for comparison.

Table 2

Bottom Ten Accounts That Have the Least Influence

Account	User Ratio	Followers
Bobby Shmurda	12.796	168200
New York Times	12.1	45900000
Hillary Clinton	11.62	24700000
Popeye's	10.84	1100000
Applebee's	7.98	632000
Donald Trump	7.37	76900000
Call of Duty	6.724	3800000
Walgreens	5.65	875600
Dominos	4.88	1300000
Activision	3.899	1155756

Note. This table shows the low influence measured by User Ratio and includes the Followers for comparison.

Sources

[1]Twitter Data and Survey results from MAT 1372 Spring 2020 Student Projects. March – May 2020. *For accounts: Super Junior and Seventeen, Data recorded October – November 2020

[2]Meeyoung Cha, Hamed Haddadi, Fabricio Benevenuto, & Krishna P. Gummadi. (2010). 'Measuring User Influence in Twitter: The Million Follower Fallacy' *Proceedings of the Fourth International AAAI Conference on Weblogs and Social Media* Washington, D.C., May 23 – 26, 2010 https://www.aaai.org/ocs/index.php/ICWSM/ICWSM10/paper/viewFile/1538/1826

[3]O'Neil, Luke. "How to Know If You've Sent a Horrible Tweet" *Esquire* 11 April 2017 https://www.esquire.com/news-politics/news/a54440/twitter-ratio-reply/

[4]"influence." *Merriam-Webster.com*. 2020. https://www.merriam-webster.com