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SOC 412

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Power Analysis for An Online Engagement Experiment

Online communities provide an important discussion space in the twenty-first century; from sports to politics to more obscure interests, there’s an online community for almost every topic imaginable. Thus, making everyone feel welcome is of the utmost importance to those who moderate these communities. The goal of this report is to discover new methods of encouraging participation in online discussions; specifically, we aim to explore whether or not “welcome messages” pinned to the top of a thread will increase engagement as measured by participant comments.

Each post in the community will be randomly assigned a welcome message or not. Two metrics will be used to measure engagement: total number of comments and number of comments posted by newcomers. A previous study found that such welcome messages increased newcomer comments by 38% and overall comments by 10%. Thus, in future experiments, though both types of comments should increase, we expect to see a stronger effect on newcomer comments than overall comments. % chance of finding the smallest effect you want to be able to observe?

First, we can look at some basic measures of our outcome variables - total comments and number of newcomer comments. Here is what some of your important outcomes look like now: on average, your posts receive approximately 50 comments per post. However, there is quite a wide variation here: your most popular post, for example, received over 35,000 comments, while more than 650 received none at all. Nonetheless, the vast majority of posts generate fewer than 15-50 comments. On average, your posts get very few newcomer comments (less than 1 per post). Only 15% of posts receive any newcomer comments at all.

If this intervention were to find the same effect as the original study we discussed, we could expect an increase of approximately 38% in newcomer comments and 10% in total comments. For you, this would mean most posts would generate something like 17-56 comments per post (a small but noticeable increase) and potentially doubling rates of newcomer comments in many posts (from 0-1 or 1-2). These are small effects, but could be quite meaningful for the top 10% of your posts that receive many newcomer comments. We do not expect to see a large increase in newcomer comments for all posts, but this intervention may lead to a meaningful increase in newcomer comments on popular posts.

Our power analysis suggests that we would need to run the study for approximately 50 days in order to have an 80% chance of seeing a statistically significant increase in both outcomes. This assumes that your community will see the same effect that was observed in the original study. This may be a questionable assumption, so further analysis should be conducted to see how similar your community is to the one used in the original experiment. Ideally, we would like to see that you experience similar numbers of total comments and newcomer comments on most posts. If data are available, we can do that type of analysis as part of our Pre-Analysis Plan (PAP). We estimated this using the average number of posts that your community receives per day, which is approximately 1168.