# For the Longest Time: Continuity and Change in One Teaching-Related Subreddit

*K. Bret Staudt Willet & Jeffrey P. Carpenter*
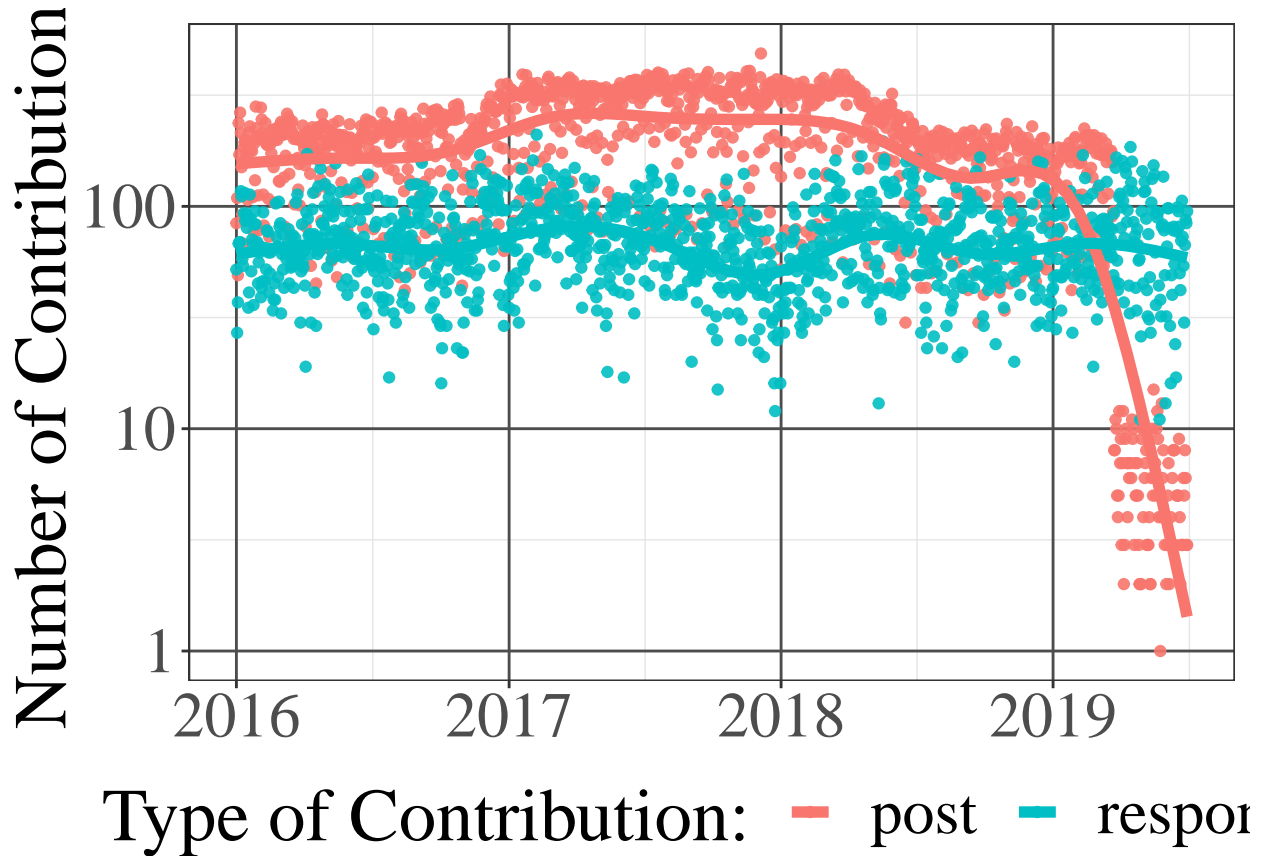
*11/18/2019*

## Contents

## Get set up

This section loads the data and packages and starts to process the data, but doesn't calculate any statistics or create any results.

1. Load packages

2. Set up settings for sharing

3. Set timeframe

4. Load subreddit posts

5. Load subreddit responses

6. Create a merged dataframe of both posts and responses.

## Analysis and Results

### Figure 1. Contributions over time

```
## [1] "In total, we collected 339618 contributions from 17860 contributors"

## [1] "dated between 2016-01-01 and 2019-06-30 (41.98 months),"

## [1] "a total of 252340 posts and 87278 responses to those posts,"

## [1] "to one teaching-related subreddit: r/Teachers."

## `geom_smooth()` using method = 'gam' and formula 'y ~ s(x, bs = "cs")'
```

Type of Contribution: — post — respon

```
## [1] "The slope of the `post` linear regression is -0.08 (p=0),"

## [1] "and the slope of the `response` linear regression is 0 (p=0.68000597)."
```

**Table 1.  Overall contributions in r/Teachers**

| Year | Contributors | Posters | Responders | Multiple Posts | Multiple Responses |
|------|--------------|---------|------------|----------------|--------------------|
| 2016 | 15719 | 12322 | 5738 | 45.06 | 45.43 |
| 2017 | 18153 | 14702 | 6133 | 49.02 | 46.03 |
| 2018 | 13301 | 9488 | 5219 | 52.35 | 50.99 |
| 2019 | 5026 | 2529 | 3058 | 57.97 | 51.60 |

**Table 2.  Descriptive Statistics of Posts per Poster and Responses per Responder**

| Year | Mean | SD | Median | Min | Max | Mean | SD | Median | Min | Max |
|------|------|------|--------|-----|------|------|-------|--------|-----|-----|
| 2016 | 7.01 | 32.80 | 1 | 1 | 1274 | 4.43 | 14.59 | 1 | 1 | 445 |
| 2017 | 7.95 | 40.67 | 1 | 1 | 2820 | 4.07 | 14.43 | 1 | 1 | 492 |
| 2018 | 9.74 | 46.62 | 2 | 1 | 2540 | 4.75 | 15.68 | 2 | 1 | 473 |
| 2019 | 9.39 | 28.66 | 2 | 1 | 720 | 3.96 | 9.45 | 2 | 1 | 204 |

**Table 3.  Content Interaction by Posts, Threads, and Responses**

| Year | Posts | Threads | Responses | Response Rate | Responses per Thread | Words per Post | Words per Response |
|------|-------|---------|-----------|---------------|----------------------|----------------|--------------------|
| 2016 | 67718 | 6740    | 25443     | 9.95          | 3.77                 | 16.86          | 58.78              |
| 2017 | 99999 | 8130    | 24940     | 8.13          | 3.07                 | 16.50          | 57.22              |
| 2018 | 71747 | 4102    | 24776     | 5.72          | 6.04                 | 18.19          | 62.40              |
| 2019 | 12876 | 1258    | 12119     | 9.77          | 9.63                 | 56.96          | 63.76              |

**Table 4. Descriptive Statistics of Voting Scores of Posts and Responses**

| Year | Mean | SD    | Median | Min | Max | Mean | SD   | Median | Min  | Max |
|------|------|-------|--------|-----|-----|------|------|--------|------|-----|
| 2016 | 1.87 | 8.22  | 1      | 0   | 369 | 2.90 | 5.91 | 1      | -127 | 151 |
| 2017 | 1.66 | 8.00  | 1      | 0   | 505 | 2.94 | 6.80 | 1      | -104 | 171 |
| 2018 | 2.02 | 10.83 | 1      | 0   | 402 | 3.48 | 7.78 | 2      | -74  | 159 |
| 2019 | 3.16 | 15.71 | 1      | 0   | 368 | 3.54 | 7.86 | 2      | -51  | 150 |

**Table 5. Social Interaction: Network Statistics by Year**

| Year | Nodes | Edges | Transitivity | Reciprocity | Mean | SD    | Median | Min | Max |
|------|-------|-------|--------------|-------------|------|-------|--------|-----|-----|
| 2016 | 6328  | 25093 | 2.10         | 0.25        | 2.25 | 9.07  | 1      | 0   | 246 |
| 2017 | 6748  | 24634 | 1.04         | 0.47        | 2.13 | 12.39 | 1      | 0   | 793 |
| 2018 | 5804  | 24244 | 1.28         | 0.10        | 2.78 | 11.58 | 1      | 0   | 671 |
| 2019 | 3351  | 11804 | 1.05         | 0.21        | 2.78 | 6.23  | 1      | 0   | 103 |

# Take sample of posts for qualitative content analysis

# Version/dependencies

```r
sessionInfo()
```

```
## R version 3.5.2 (2018-12-20)
## Platform: x86_64-apple-darwin15.6.0 (64-bit)
## Running under: macOS Mojave 10.14.6
##
## Matrix products: default
## BLAS: /Library/Frameworks/R.framework/Versions/3.5/Resources/lib/libRblas.0.dylib
## LAPACK: /Library/Frameworks/R.framework/Versions/3.5/Resources/lib/libRlapack.dylib
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets  methods   base
##
## other attached packages:
##  [1] ggraph_1.0.2    igraph_1.2.4.1  lubridate_1.7.4 anytime_0.3.3
##  [5] forcats_0.4.0   stringr_1.4.0   dplyr_0.8.0.1   purrr_0.3.2
##  [9] readr_1.3.1     tidyr_0.8.3     tibble_2.1.1    ggplot2_3.1.1
```

```
## [13] tidyverse_1.2.1 knitr_1.22
##
## loaded via a namespace (and not attached):
##  [1] ggrepel_0.8.0      Rcpp_1.0.1        lattice_0.20-38
##  [4] clisymbols_1.2.0   assertthat_0.2.1  rprojroot_1.3-2
##  [7] digest_0.6.18      ggforce_0.2.2     R6_2.4.0
## [10] cellranger_1.1.0   plyr_1.8.4        backports_1.1.4
## [13] RApiDatetime_0.0.4 evaluate_0.13     highr_0.8
## [16] httr_1.4.0         pillar_1.3.1      rlang_0.4.0
## [19] lazyeval_0.2.2     readxl_1.3.1      rstudioapi_0.10
## [22] Matrix_1.2-17      rmarkdown_1.12    splines_3.5.2
## [25] polyclip_1.10-0    munsell_0.5.0     broom_0.5.2
## [28] compiler_3.5.2     modelr_0.1.4      xfun_0.6
## [31] pkgconfig_2.0.2    mgcv_1.8-28       htmltools_0.4.0
## [34] tidyselect_0.2.5   gridExtra_2.3     viridisLite_0.3.0
## [37] crayon_1.3.4       withr_2.1.2       MASS_7.3-51.4
## [40] grid_3.5.2         nlme_3.1-139      jsonlite_1.6
## [43] gtable_0.3.0       magrittr_1.5      scales_1.0.0
## [46] cli_1.1.0          stringi_1.4.3     farver_1.1.0
## [49] viridis_0.5.1      fs_1.2.7          xml2_1.2.0
## [52] generics_0.0.2     tools_3.5.2       glue_1.3.1
## [55] tweenr_1.0.1       hms_0.4.2         yaml_2.2.0
## [58] colorspace_1.4-1   rvest_0.3.3       haven_2.1.0
## [61] usethis_1.5.0
```