

# It's Mutual: Continuity and Change of Reciprocal Discussions in Teaching-Related Subreddits

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## Get set up

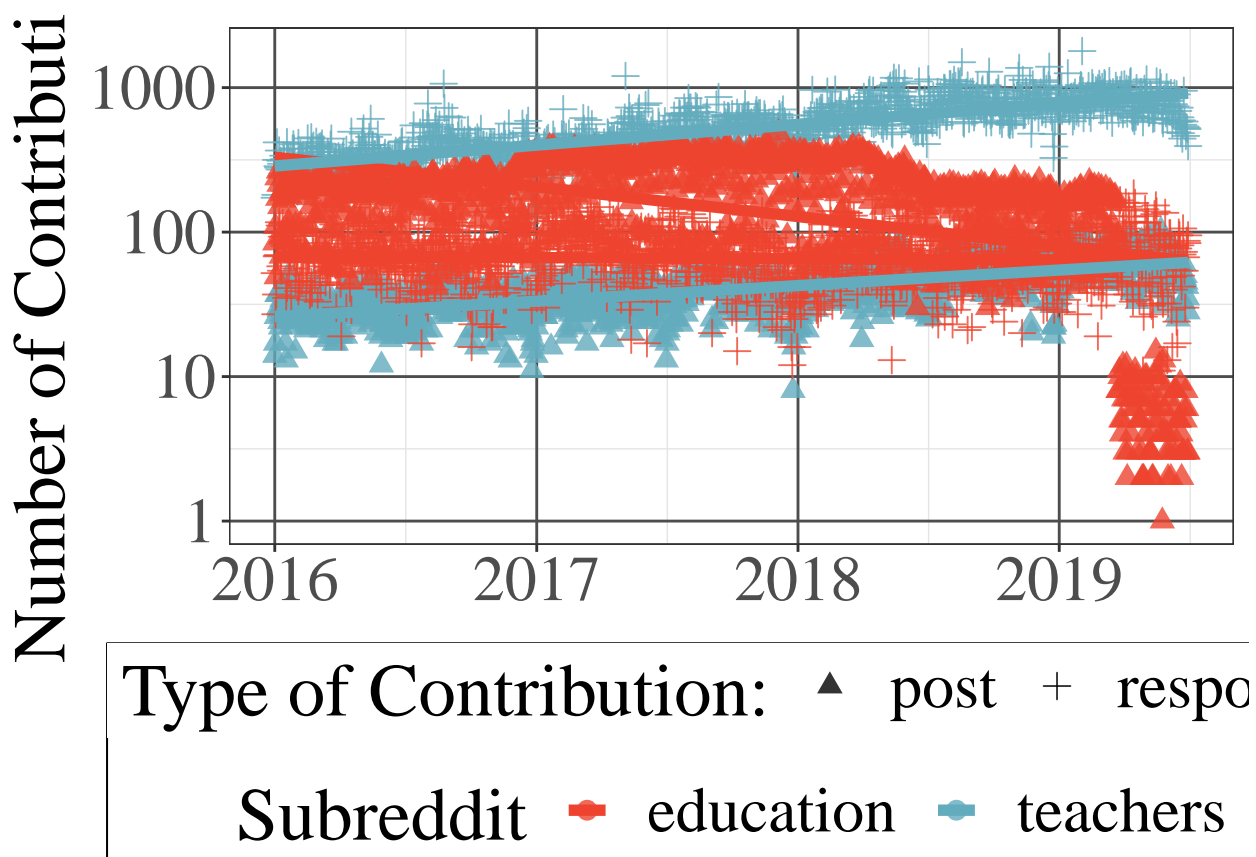
This section loads the data and packages and starts to process the data, but doesn't calculate any statistics or create any results.

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 posts and responses for both subreddits.

## Analysis and Results

Figure 1. Contributions to r/Teachers and r/education each day from January 1, 2016 through June 30, 2019

```
## [1] "From the r/Teachers subreddit, we collected 696660 contributions from 55148 contributors"
## [1] "dated between 2016-01-01 and 2019-06-30 (41.98 months),"
## [1] "a total of 54933 posts and 641727 responses to those posts."
## [1] "From the r/education subreddit during the same time period, we collected 339618 contributions f
## [1] "a total of 252340 posts and 87278 responses to those posts."
```



```
## [1] "For the r/Teachers subreddit, the slope of the `post` linear regression is 0.03 (p=0),"
## [1] "and the slope of the `response` linear regression is 0.49 (p=0)."
```

```
## [1] "For the r/education subreddit, 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)."
```

Figure 2. Contributors to r/Teachers and r/education over Time

Year	Contributors		Posters		Responders	
	r/Teachers	r/education	r/Teachers	r/education	r/Teachers	r/education
2016.1	8150	8728	3512	6699	6997	3218
2016.2	9988	9016	3866	6787	8794	3471
2017.1	10676	10734	4272	8521	9373	3744
2017.2	11606	9739	4575	7762	10313	3249
2018.1	13650	8705	5292	6454	12184	3143
2018.2	18212	6557	6322	4085	16415	3042
2019.1	18368	5026	7062	2529	16241	3058

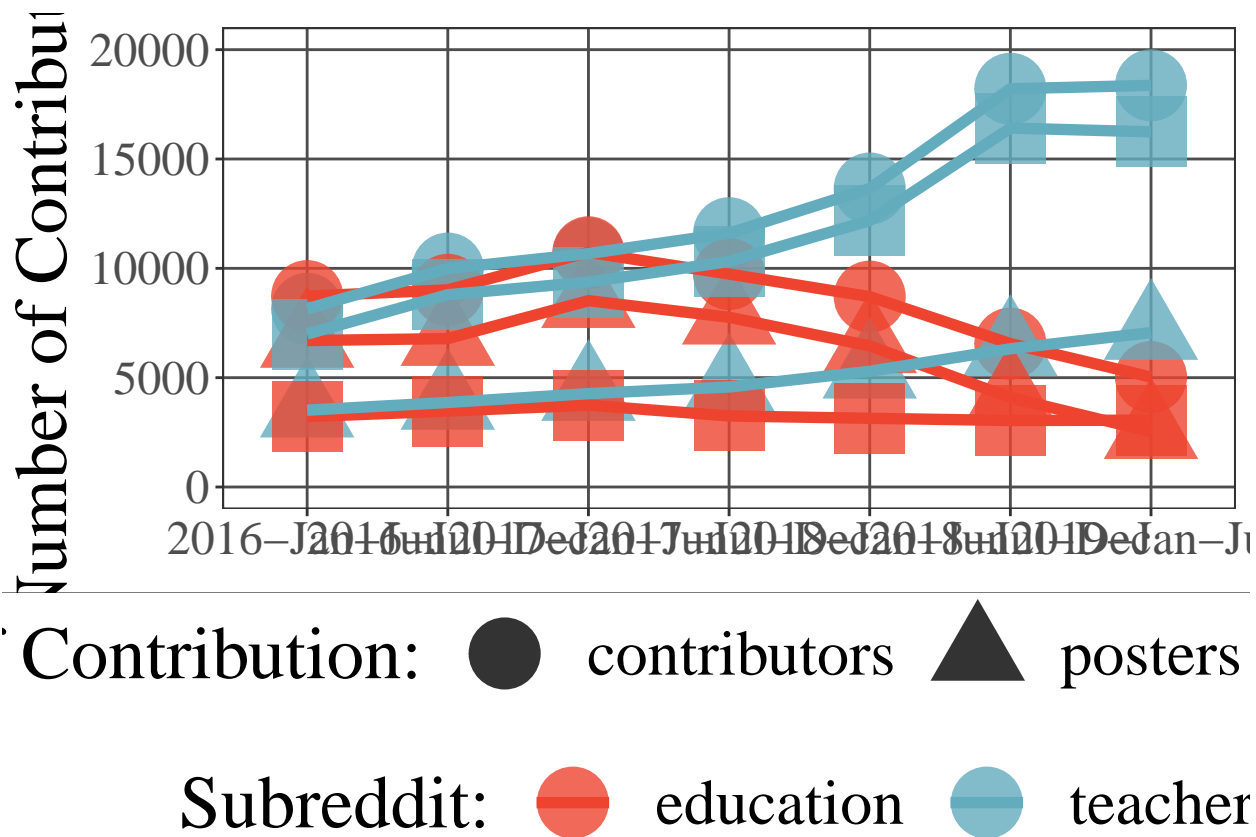


Figure 3. Degree of Contribution to r/Teachers and r/education over Time

```
## Joining, by = "semester"
## Joining, by = "semester"
## Joining, by = "semester"
## Joining, by = "semester"
## Joining, by = "semester"
## Joining, by = "semester"
```

Year	Multiple Posts Proportion		Multiple Responses Proportion		Self-Responses Proportion	
	r/Teachers	r/education	r/Teachers	r/education	r/Teachers	r/education
2016.1	79.64	45.17	63.17	43.72	27.65	33.31
2016.2	83.45	46.85	60.84	44.17	24.79	32.73
2017.1	82.70	48.05	60.20	45.22	26.26	37.37
2017.2	85.55	51.65	63.47	44.57	26.47	36.41
2018.1	83.50	52.34	63.15	48.84	25.50	24.59
2018.2	81.35	51.97	59.18	49.87	22.11	16.04
2019.1	78.58	57.97	61.92	51.60	24.13	15.96

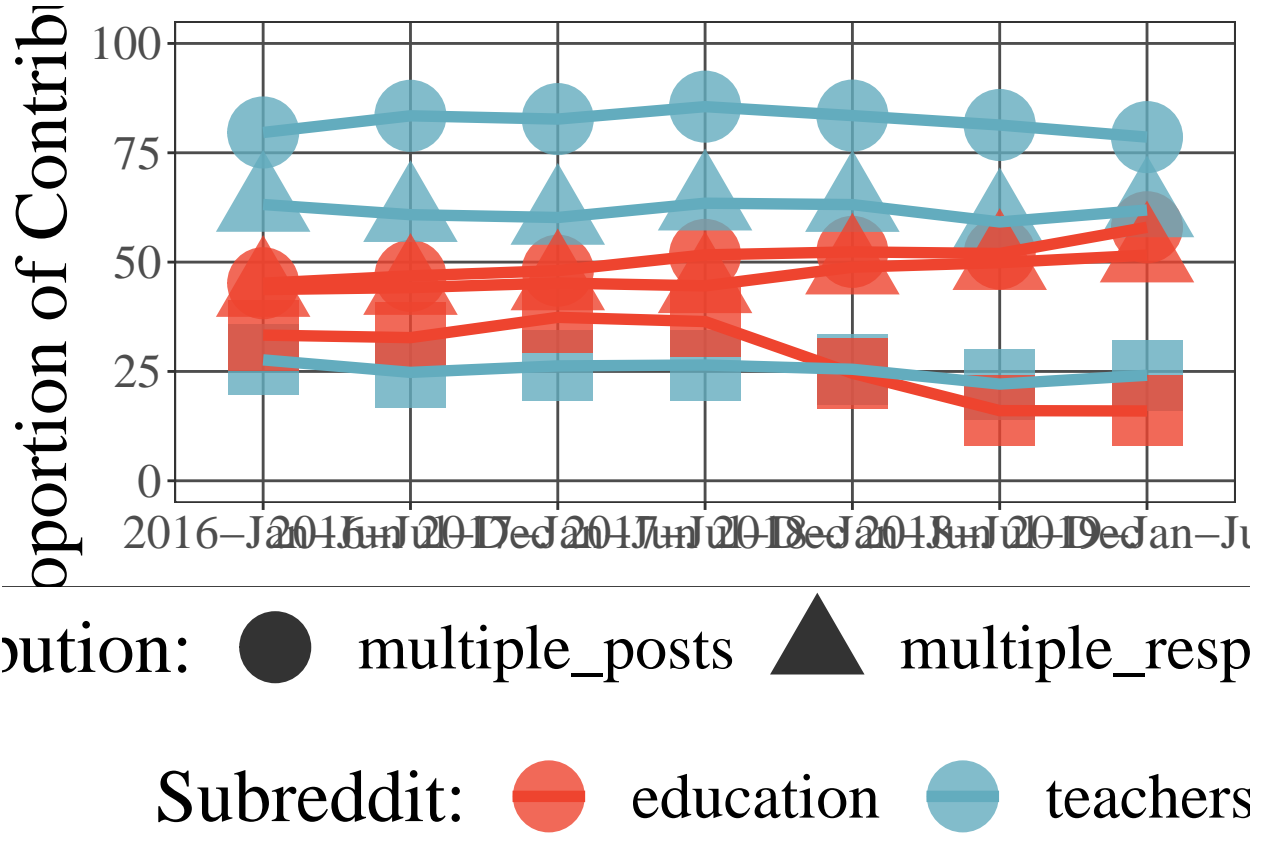
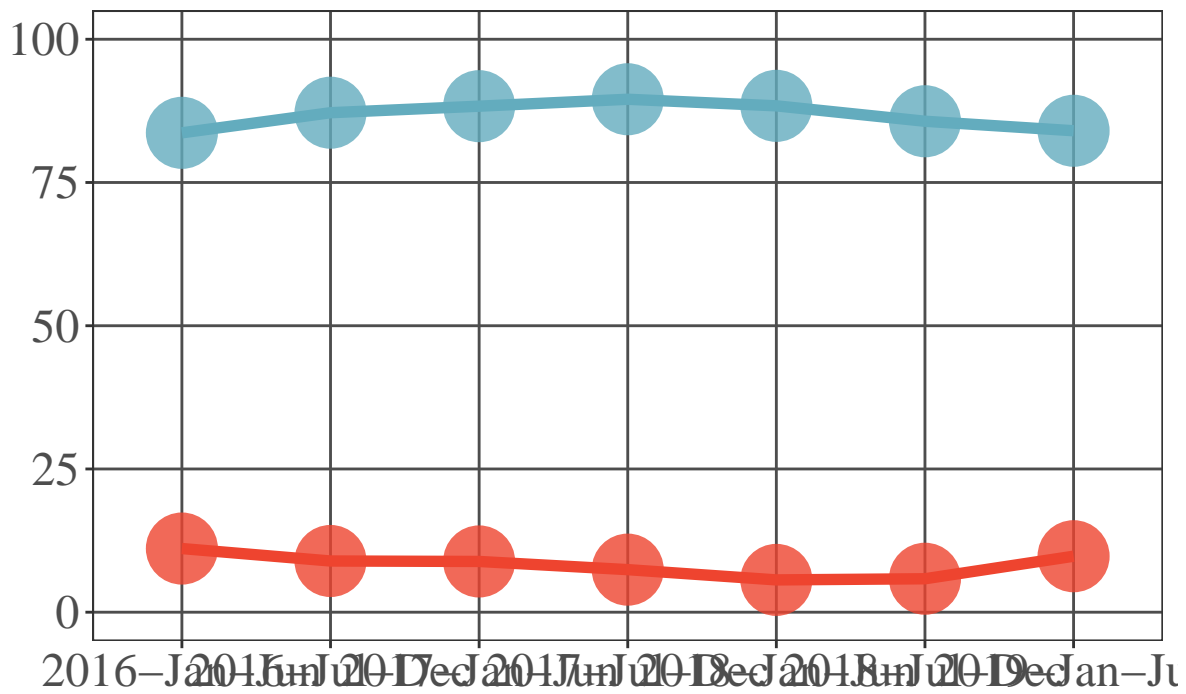


Figure 4. Response Rate in r/Teachers and r/education over Time

Year	Response Rate %		Responses per Thread	
	r/Teachers	r/education	r/Teachers	r/education
2016.1	83.67	11.11	12.01	3.59
2016.2	87.18	8.94	12.37	3.97
2017.1	88.32	8.86	12.34	3.20
2017.2	89.53	7.43	13.87	2.92
2018.1	88.38	5.64	14.23	5.14
2018.2	85.69	5.84	15.02	7.43
2019.1	84.03	9.77	13.35	9.63

age of Subreddit Threads Receiving



Subreddit: ● education ● teachers

Figure 5. Thread Lengths in r/Teachers and r/education over Time

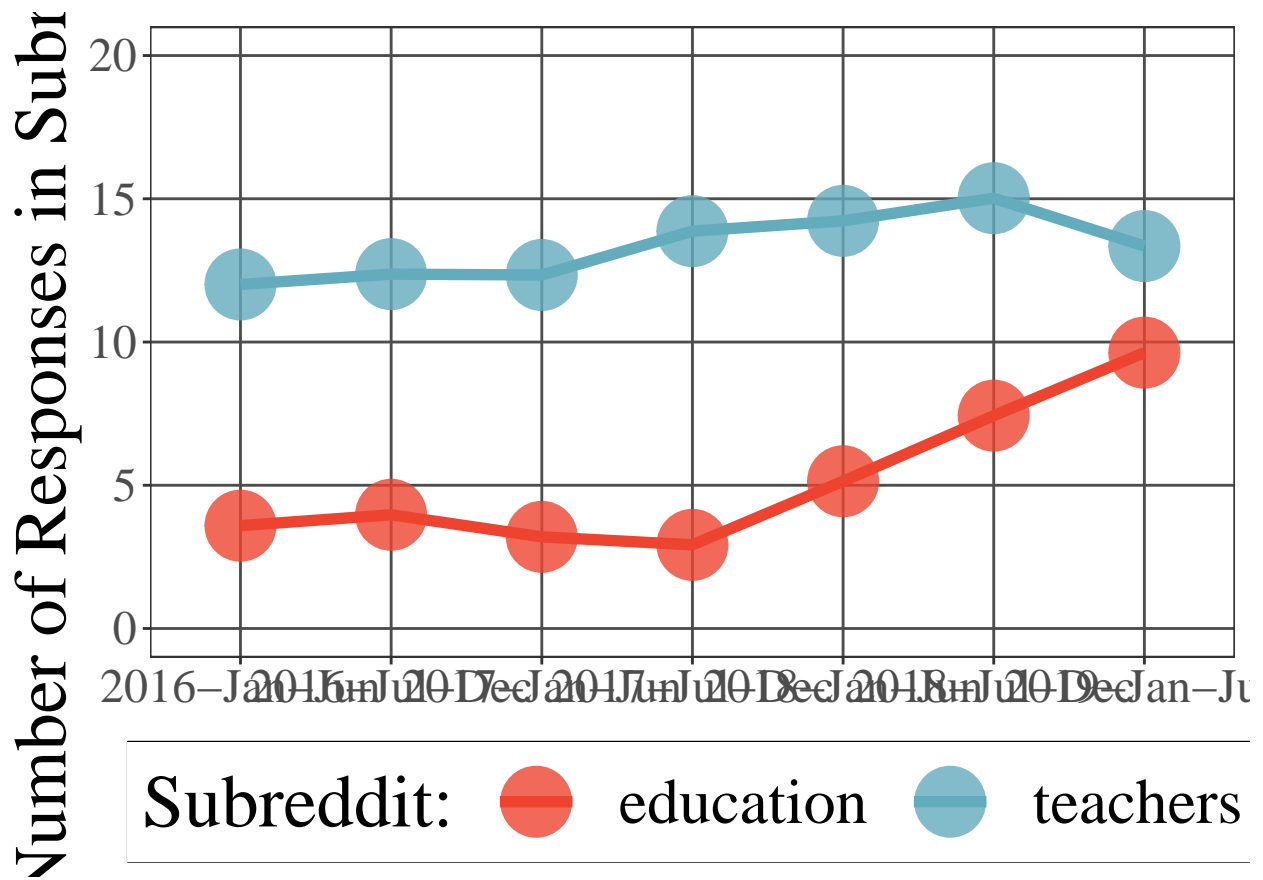


Figure 6. Percentage of Self-replies per Thread in r/Teachers and r/education over Time

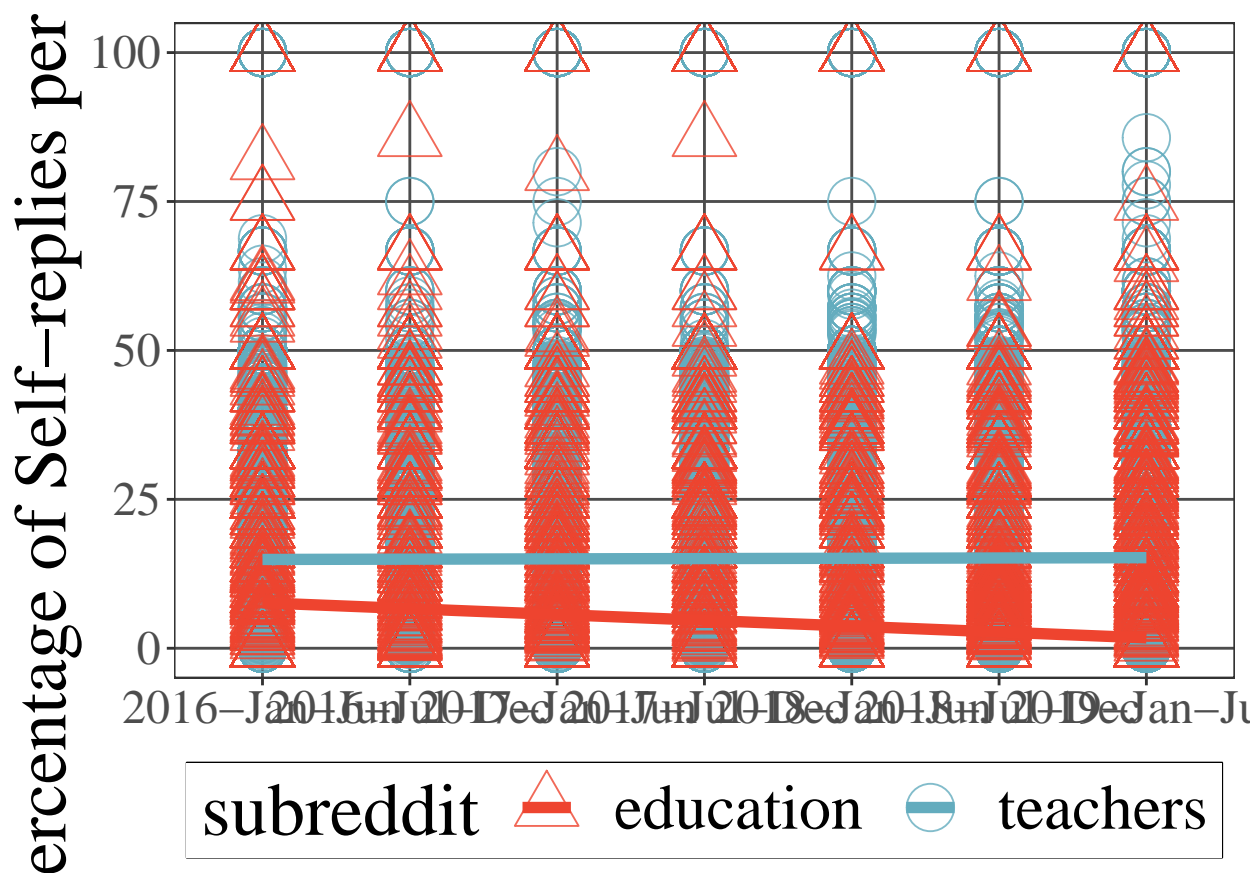


Figure 7. Transitivity in r/Teachers and r/education over Time

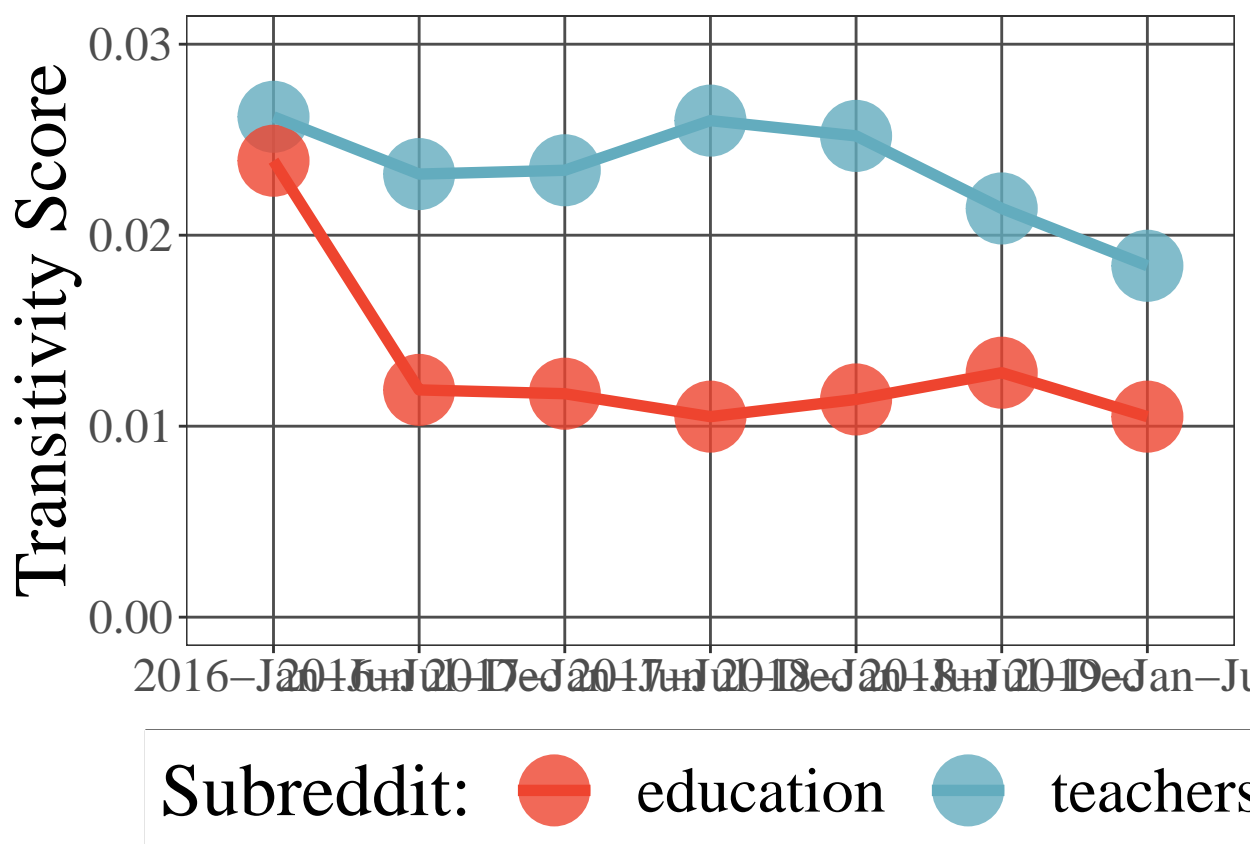




Figure 8. Reciprocity in r/Teachers and r/education over Time

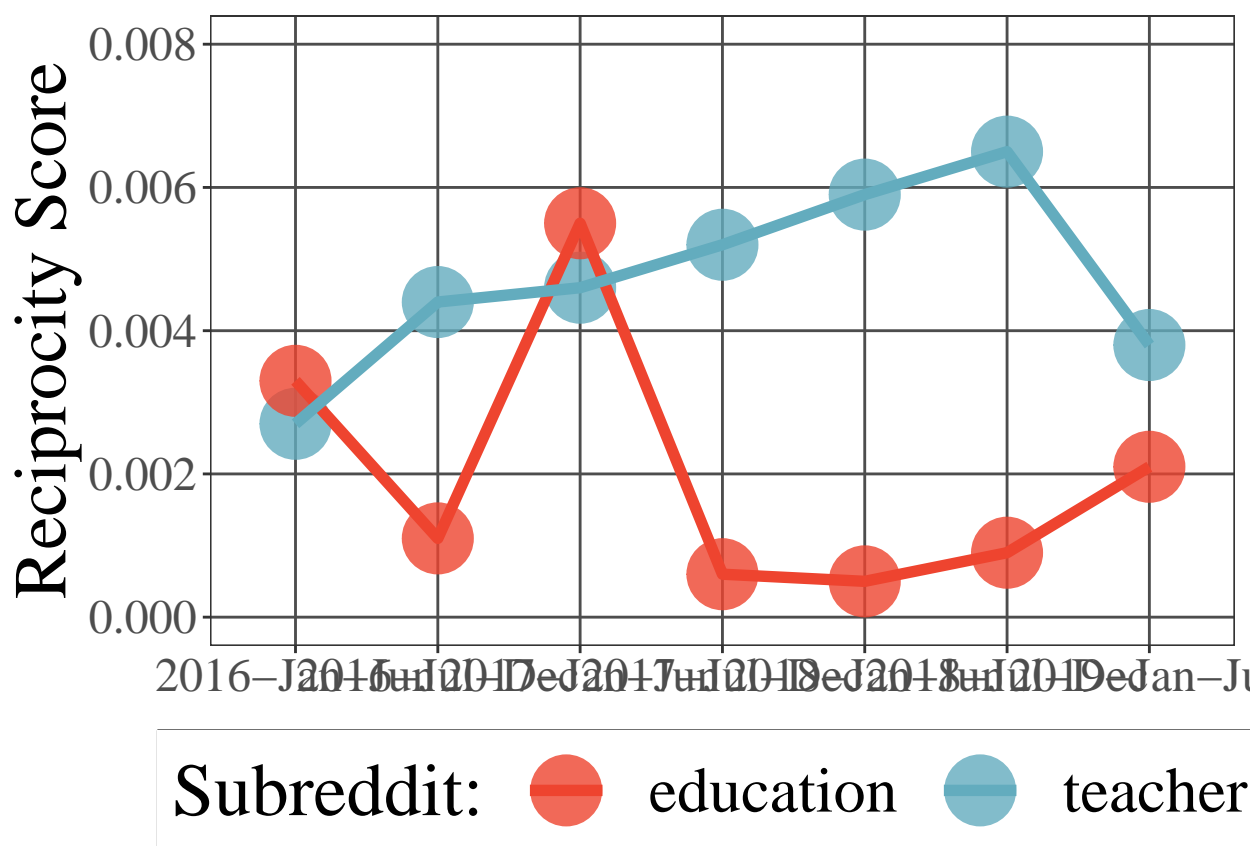
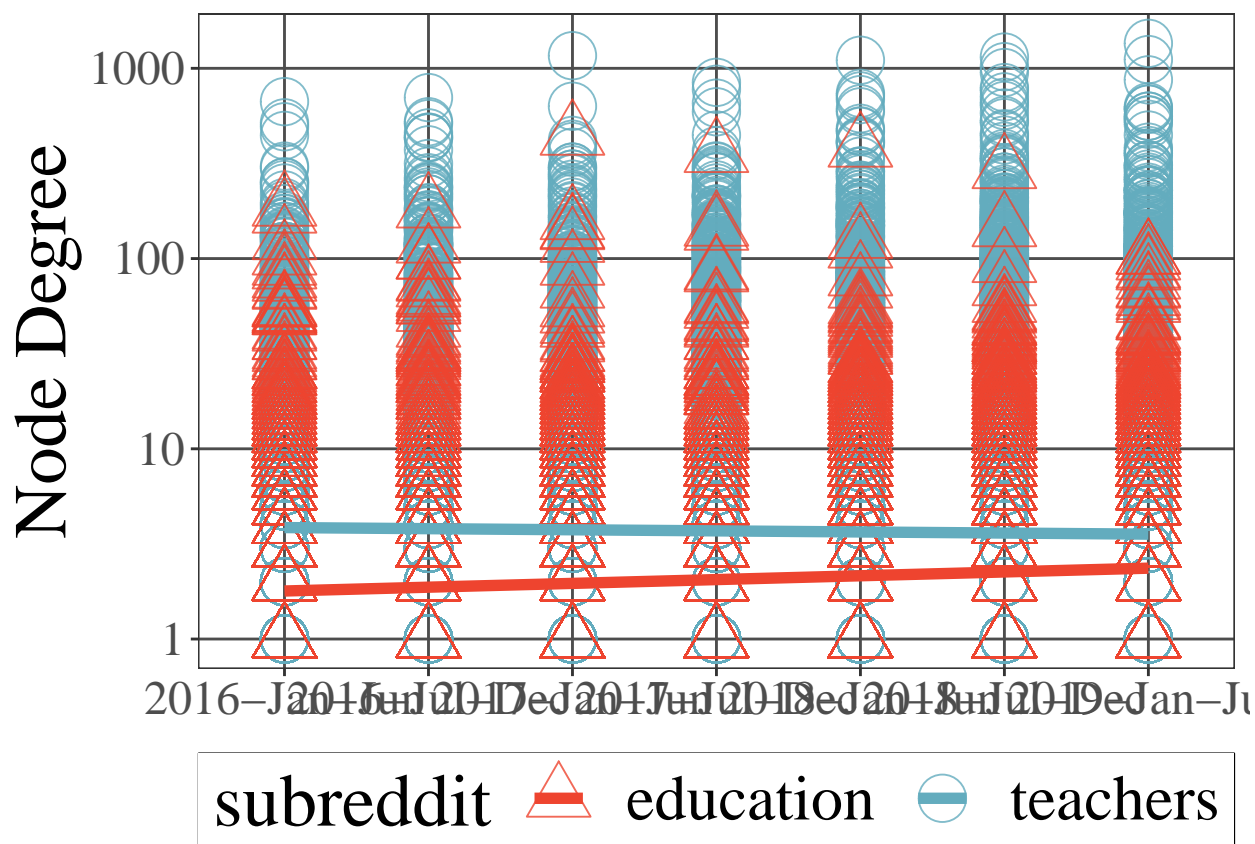


Figure 9. Degree of Connectedness in r/Teachers and r/education over Time



## Sample posts for qualitative content analysis

Finally, we took a purposeful sample of the Top-10 posts with most responses (or highest voting score) x 7 semesters x 2 subreddits, then up to the Top-10 responses to each (140 posts + up to 1400 responses).

## Version/dependencies

```
sessionInfo()
```

```
## R version 3.6.2 (2019-12-12)
## 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/3.6/Resources/lib/libRblas.0.dylib
## LAPACK: /Library/Frameworks/R.framework/Versions/3.6/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_2.0.1      igraph_1.2.4.2    lubridate_1.7.4   anytime_0.3.7
## [5] forcats_0.4.0     stringr_1.4.0     dplyr_0.8.4       purrr_0.3.3
## [9] readr_1.3.1       tidyr_1.0.2       tibble_2.1.3      ggplot2_3.2.1
## [13] tidyverse_1.3.0   kableExtra_1.1.0  knitr_1.27
##
## loaded via a namespace (and not attached):
## [1] ggrepel_0.8.1      Rcpp_1.0.3        lattice_0.20-38    clisymbols_1.2.0
## [5] rprojroot_1.3-2    assertthat_0.2.1  digest_0.6.23      ggforce_0.3.1
## [9] R6_2.4.1           cellranger_1.1.0  backports_1.1.5    reprex_0.3.0
## [13] evaluate_0.14      httr_1.4.1        pillar_1.4.3       rlang_0.4.4
## [17] lazyeval_0.2.2     readxl_1.3.1      rstudioapi_0.10    rmarkdown_2.1
## [21] labeling_0.3        webshot_0.5.2     polyclip_1.10-0    munsell_0.5.0
## [25] broom_0.5.4         compiler_3.6.2    modelr_0.1.5       xfun_0.12
## [29] pkgconfig_2.0.3    htmltools_0.4.0   tidyselect_1.0.0   gridExtra_2.3
## [33] graphlayouts_0.5.0 fansi_0.4.1        viridisLite_0.3.0  crayon_1.3.4
## [37] dbplyr_1.4.2        withr_2.1.2       MASS_7.3-51.5      grid_3.6.2
## [41] nlme_3.1-143        jsonlite_1.6.1    gtable_0.3.0       lifecycle_0.1.0
## [45] DBI_1.1.0           magrittr_1.5       scales_1.1.0       cli_2.0.1
## [49] stringi_1.4.5       farver_2.0.3      viridis_0.5.1      fs_1.3.1
## [53] xml2_1.2.2          generics_0.0.2    vctrs_0.2.2        tools_3.6.2
## [57] glue_1.3.1          tweenr_1.0.1      hms_0.5.3          yaml_2.2.1
## [61] colorspace_1.4-1    tidygraph_1.1.2   rvest_0.3.5        haven_2.2.0
## [65] usethis_1.5.1

```