Inferential report

Table of contents

# 1. Total interactions

## 1.1 By university

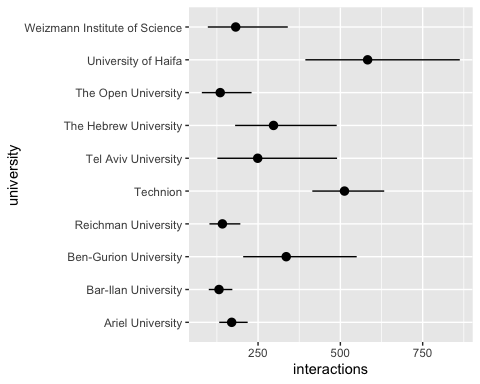
To compare the amount of post interactions across the different universities, we ran a quasi-poisson regression[[1]](#footnote-20) using university as the sole predictor. The following table presents the regression results and indicates that several universities show significantly more interactions as compared to Ariel University.

| **Characteristic** | **IRR**1 | **95% CI**1 | **p-value** |
| --- | --- | --- | --- |
| (Intercept) | 170 | 132, 219 | <0.001 |
| university |  |  |  |
| Ariel University | — | — |  |
| Bar-Ilan University | 0.77 | 0.53, 1.12 | 0.2 |
| Ben-Gurion University | 1.98 | 1.13, 3.44 | 0.016 |
| Reichman University | 0.83 | 0.55, 1.26 | 0.4 |
| Technion | 3.02 | 2.17, 4.19 | <0.001 |
| Tel Aviv University | 1.47 | 0.71, 3.02 | 0.3 |
| The Hebrew University | 1.75 | 1.00, 3.06 | 0.050 |
| The Open University | 0.80 | 0.44, 1.44 | 0.4 |
| University of Haifa | 3.43 | 2.15, 5.47 | <0.001 |
| Weizmann Institute of Science | 1.07 | 0.55, 2.11 | 0.8 |
| 1IRR = Incidence Rate Ratio, CI = Confidence Interval | | | |

To view the differences more clearly, we make and summarize predictions for post interactions according to university, and can clearly see that the University of Haifa gets the most engagement with their posts, while Bar-Ilan University gets the least.

university Estimate Pr(>|z|) S 2.5 % 97.5 %  
 Ariel University 170 <0.001 Inf 132.1 218  
 Bar-Ilan University 131 <0.001 915.4 100.4 172  
 Ben-Gurion University 336 <0.001 389.7 204.8 550  
 Reichman University 142 <0.001 646.8 102.3 196  
 Technion 513 <0.001 Inf 414.8 633  
 Tel Aviv University 249 <0.001 188.2 126.5 490  
 The Hebrew University 297 <0.001 366.3 180.4 489  
 The Open University 135 <0.001 239.1 79.3 230  
 University of Haifa 583 <0.001 735.4 393.7 863  
 Weizmann Institute of Science 182 <0.001 196.2 97.4 340  
  
Columns: rowid, university, estimate, p.value, s.value, conf.low, conf.high, rowid\_dedup   
Type: invlink(link)

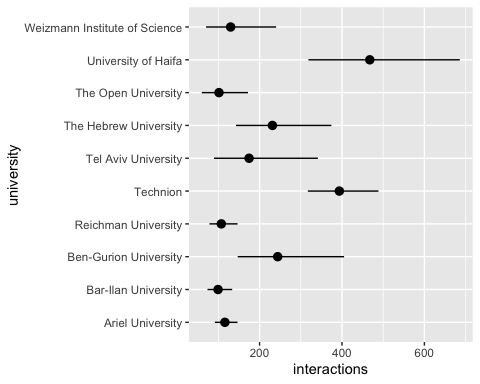
The graph makes these stark differences even more clear:



### 1.1.1 With an offset

When we run the same model but adding an offset for the number of days a post has been up, recognizing that posts that have been up longer have had more of an opportunity to accrue likes, results are similar but the differences become less stark.

| **Characteristic** | **IRR**1 | **95% CI**1 | **p-value** |
| --- | --- | --- | --- |
| (Intercept) | 2.52 | 1.99, 3.19 | <0.001 |
| university |  |  |  |
| Ariel University | — | — |  |
| Bar-Ilan University | 1.05 | 0.72, 1.53 | 0.8 |
| Ben-Gurion University | 2.03 | 1.16, 3.56 | 0.013 |
| Reichman University | 0.82 | 0.56, 1.22 | 0.3 |
| Technion | 3.17 | 2.30, 4.36 | <0.001 |
| Tel Aviv University | 2.12 | 1.04, 4.32 | 0.039 |
| The Hebrew University | 1.68 | 0.98, 2.87 | 0.059 |
| The Open University | 0.71 | 0.40, 1.27 | 0.2 |
| University of Haifa | 3.79 | 2.42, 5.95 | <0.001 |
| Weizmann Institute of Science | 1.26 | 0.65, 2.44 | 0.5 |
| 1IRR = Incidence Rate Ratio, CI = Confidence Interval | | | |



## 1.2 By category

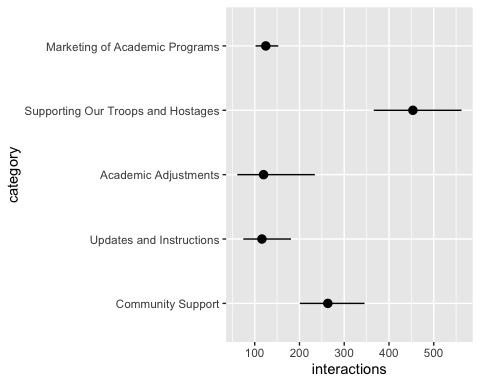
To compare the amount of post interactions across the different post categories, we ran a quasi-poisson regression using category as the sole predictor. The following table presents the regression results and shows that the category “Supporting our Troops and Hostages” receives more interactions that the rest.

| **Characteristic** | **IRR**1 | **95% CI**1 | **p-value** |
| --- | --- | --- | --- |
| (Intercept) | 263 | 201, 345 | <0.001 |
| category |  |  |  |
| Community Support | — | — |  |
| Updates and Instructions | 0.44 | 0.26, 0.74 | 0.002 |
| Academic Adjustments | 0.45 | 0.22, 0.94 | 0.033 |
| Supporting Our Troops and Hostages | 1.72 | 1.22, 2.43 | 0.002 |
| Marketing of Academic Programs | 0.47 | 0.34, 0.66 | <0.001 |
| 1IRR = Incidence Rate Ratio, CI = Confidence Interval | | | |

To view the differences more clearly, we make and summarize predictions for post interactions according to post category.

category Estimate Pr(>|z|) S 2.5 % 97.5 %  
 Community Support 263 <0.001 Inf 200.8 345  
 Updates and Instructions 116 <0.001 322.5 74.5 181  
 Academic Adjustments 120 <0.001 144.8 61.2 234  
 Supporting Our Troops and Hostages 453 <0.001 Inf 365.9 562  
 Marketing of Academic Programs 125 <0.001 Inf 101.9 153  
  
Columns: rowid, category, estimate, p.value, s.value, conf.low, conf.high, rowid\_dedup   
Type: invlink(link)

This information in graph form:



### 1.2.1 Controlling for University

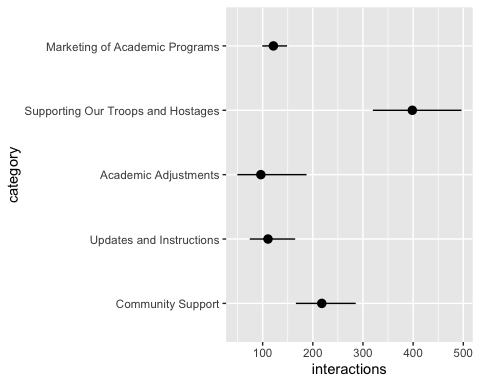
As we have established that there are differences in total interactions when comparing different universities, it is possible that the differences we observe across post categories are due to an imbalance in how many posts of each category are posted by each university. Using a quasi-poisson model that predicts total interactions and includes both category and university as predictors is one way to account for this potential imbalance. Model results are presented in the following table:

| **Characteristic** | **IRR**1 | **95% CI**1 | **p-value** |
| --- | --- | --- | --- |
| (Intercept) | 139 | 96.7, 199 | <0.001 |
| university |  |  |  |
| Ariel University | — | — |  |
| Bar-Ilan University | 0.90 | 0.64, 1.25 | 0.5 |
| Ben-Gurion University | 2.11 | 1.21, 3.68 | 0.008 |
| Reichman University | 0.90 | 0.62, 1.33 | 0.6 |
| Technion | 3.30 | 2.43, 4.49 | <0.001 |
| Tel Aviv University | 1.75 | 0.84, 3.63 | 0.13 |
| The Hebrew University | 1.89 | 1.10, 3.25 | 0.021 |
| The Open University | 0.91 | 0.51, 1.62 | 0.7 |
| University of Haifa | 3.34 | 2.12, 5.24 | <0.001 |
| Weizmann Institute of Science | 1.61 | 0.81, 3.19 | 0.2 |
| category |  |  |  |
| Community Support | — | — |  |
| Updates and Instructions | 0.51 | 0.32, 0.81 | 0.005 |
| Academic Adjustments | 0.44 | 0.22, 0.91 | 0.026 |
| Supporting Our Troops and Hostages | 1.83 | 1.30, 2.57 | <0.001 |
| Marketing of Academic Programs | 0.56 | 0.39, 0.79 | 0.001 |
| 1IRR = Incidence Rate Ratio, CI = Confidence Interval | | | |

Most usefully, we can use the model to make predictions for all combinations of category and university, and summarise the predictions by category, averaging across all universities. Doing this, we see that the effect is slightly less pronounced, but the conclusion remains the same: posts in the category “Supporting Our Troops and Hostages” clearly receive more interactions.

category Estimate Pr(>|z|) S 2.5 % 97.5 %  
 Community Support 217.9 <0.001 Inf 166.2 286  
 Updates and Instructions 110.6 <0.001 391.2 74.3 165  
 Academic Adjustments 96.4 <0.001 134.6 49.5 188  
 Supporting Our Troops and Hostages 398.3 <0.001 Inf 319.7 496  
 Marketing of Academic Programs 121.4 <0.001 Inf 99.2 149  
  
Columns: category, estimate, p.value, s.value, conf.low, conf.high   
Type: invlink(link)

As a graph:



# 2. Positive interactions

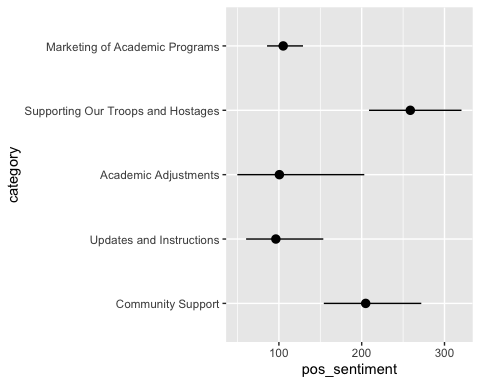
## 2.1 By category

To compare the amount of positive interactions across the different post categories, we ran a quasi-poisson regression using category as the sole predictor. The following table presents the regression results and shows that the category “Supporting our Troops and Hostages” receives more positive interactions that the rest, but not significantly more than the baseline category “Community Support”.

| **Characteristic** | **IRR**1 | **95% CI**1 | **p-value** |
| --- | --- | --- | --- |
| (Intercept) | 205 | 154, 272 | <0.001 |
| category |  |  |  |
| Community Support | — | — |  |
| Updates and Instructions | 0.47 | 0.27, 0.81 | 0.007 |
| Academic Adjustments | 0.49 | 0.23, 1.05 | 0.066 |
| Supporting Our Troops and Hostages | 1.26 | 0.88, 1.80 | 0.2 |
| Marketing of Academic Programs | 0.51 | 0.36, 0.73 | <0.001 |
| 1IRR = Incidence Rate Ratio, CI = Confidence Interval | | | |

To view the differences more clearly, we make and summarize predictions for post interactions according to post category.

category Estimate Pr(>|z|) S 2.5 % 97.5 %  
 Community Support 204.8 <0.001 981.4 154.2 272  
 Updates and Instructions 96.3 <0.001 269.9 60.4 154  
 Academic Adjustments 100.6 <0.001 123.3 49.8 203  
 Supporting Our Troops and Hostages 258.7 <0.001 Inf 208.8 321  
 Marketing of Academic Programs 105.2 <0.001 Inf 85.7 129  
  
Columns: rowid, category, estimate, p.value, s.value, conf.low, conf.high, rowid\_dedup   
Type: invlink(link)

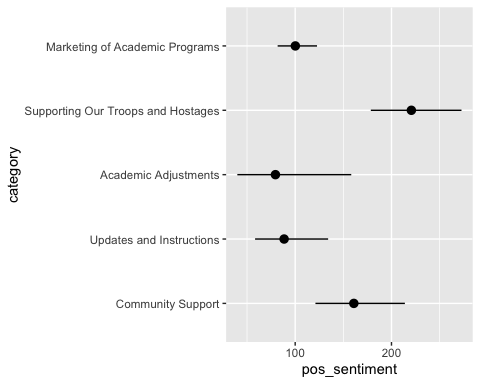


### 2.1.1 Controlling for university

As above, we also run a model with university as an additional predictor and summarise predictions averaging over the different universities:

| **Characteristic** | **IRR**1 | **95% CI**1 | **p-value** |
| --- | --- | --- | --- |
| (Intercept) | 85.6 | 57.7, 127 | <0.001 |
| university |  |  |  |
| Ariel University | — | — |  |
| Bar-Ilan University | 0.92 | 0.65, 1.29 | 0.6 |
| Ben-Gurion University | 2.81 | 1.63, 4.86 | <0.001 |
| Reichman University | 1.10 | 0.77, 1.59 | 0.6 |
| Technion | 4.71 | 3.39, 6.55 | <0.001 |
| Tel Aviv University | 1.69 | 1.14, 2.51 | 0.010 |
| The Hebrew University | 2.42 | 1.31, 4.47 | 0.005 |
| The Open University | 1.16 | 0.62, 2.17 | 0.7 |
| University of Haifa | 4.13 | 2.54, 6.72 | <0.001 |
| Weizmann Institute of Science | 2.10 | 1.01, 4.40 | 0.048 |
| category |  |  |  |
| Community Support | — | — |  |
| Updates and Instructions | 0.55 | 0.33, 0.90 | 0.018 |
| Academic Adjustments | 0.49 | 0.24, 1.04 | 0.063 |
| Supporting Our Troops and Hostages | 1.37 | 0.97, 1.95 | 0.078 |
| Marketing of Academic Programs | 0.62 | 0.43, 0.90 | 0.012 |
| 1IRR = Incidence Rate Ratio, CI = Confidence Interval | | | |

category Estimate Pr(>|z|) S 2.5 % 97.5 %  
 Community Support 160.9 <0.001 887.6 121.0 214  
 Updates and Instructions 88.5 <0.001 325.9 58.4 134  
 Academic Adjustments 79.5 <0.001 116.0 39.9 158  
 Supporting Our Troops and Hostages 220.6 <0.001 Inf 178.5 273  
 Marketing of Academic Programs 100.2 <0.001 Inf 81.8 123  
  
Columns: category, estimate, p.value, s.value, conf.low, conf.high   
Type: invlink(link)



# 3. Negative interactions

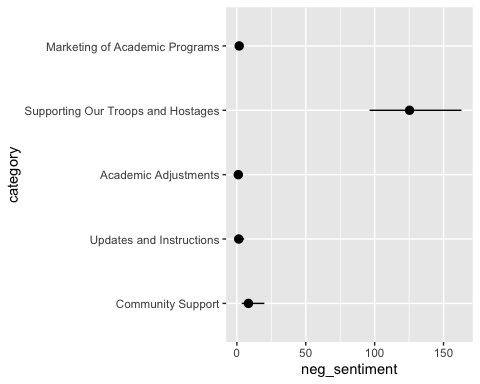
## 3.1 By category

To compare the amount of negative interactions across the different post categories, we ran a quasi-poisson regression using category as the sole predictor. The following table presents the regression results and shows that the category “Supporting our Troops and Hostages” receives more negative interactions that the rest.

| **Characteristic** | **IRR**1 | **95% CI**1 | **p-value** |
| --- | --- | --- | --- |
| (Intercept) | 8.39 | 3.53, 20.0 | <0.001 |
| category |  |  |  |
| Community Support | — | — |  |
| Updates and Instructions | 0.16 | 0.03, 0.82 | 0.028 |
| Academic Adjustments | 0.12 | 0.04, 0.39 | <0.001 |
| Supporting Our Troops and Hostages | 14.9 | 6.03, 37.0 | <0.001 |
| Marketing of Academic Programs | 0.20 | 0.06, 0.70 | 0.012 |
| 1IRR = Incidence Rate Ratio, CI = Confidence Interval | | | |

To view the differences more clearly, we make and summarize predictions for negative interactions according to post category.

category Estimate Pr(>|z|) S 2.5 % 97.5 %  
 Community Support 8.39 <0.001 19.4 3.530 19.96  
 Updates and Instructions 1.35 0.667 0.6 0.343 5.32  
 Academic Adjustments 1.04 0.923 0.1 0.496 2.17  
 Supporting Our Troops and Hostages 125.34 <0.001 940.8 96.355 163.03  
 Marketing of Academic Programs 1.69 0.249 2.0 0.692 4.12  
  
Columns: rowid, category, estimate, p.value, s.value, conf.low, conf.high, rowid\_dedup   
Type: invlink(link)

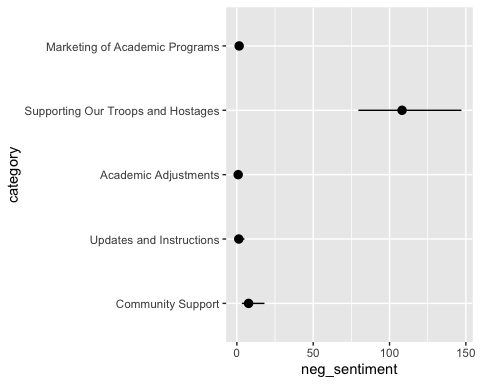


### 3.1.1 Controlling for university

As above, we also run a model with university as an additional predictor and summarise predictions averaging over the different universities:

| **Characteristic** | **IRR**1 | **95% CI**1 | **p-value** |
| --- | --- | --- | --- |
| (Intercept) | 9.88 | 3.89, 25.1 | <0.001 |
| university |  |  |  |
| Ariel University | — | — |  |
| Bar-Ilan University | 0.97 | 0.59, 1.61 | >0.9 |
| Ben-Gurion University | 0.56 | 0.14, 2.21 | 0.4 |
| Reichman University | 0.60 | 0.30, 1.21 | 0.2 |
| Technion | 1.26 | 0.56, 2.85 | 0.6 |
| Tel Aviv University | 1.35 | 0.42, 4.32 | 0.6 |
| The Hebrew University | 0.76 | 0.34, 1.70 | 0.5 |
| The Open University | 0.35 | 0.09, 1.37 | 0.13 |
| University of Haifa | 1.05 | 0.52, 2.12 | 0.9 |
| Weizmann Institute of Science | 0.52 | 0.16, 1.69 | 0.3 |
| category |  |  |  |
| Community Support | — | — |  |
| Updates and Instructions | 0.16 | 0.03, 0.82 | 0.028 |
| Academic Adjustments | 0.11 | 0.03, 0.37 | <0.001 |
| Supporting Our Troops and Hostages | 14.1 | 5.64, 35.2 | <0.001 |
| Marketing of Academic Programs | 0.20 | 0.06, 0.67 | 0.010 |
| 1IRR = Incidence Rate Ratio, CI = Confidence Interval | | | |

category Estimate Pr(>|z|) S 2.5 % 97.5 %  
 Community Support 7.680 <0.001 18.3 3.260 18.10  
 Updates and Instructions 1.253 0.748 0.4 0.316 4.97  
 Academic Adjustments 0.857 0.717 0.5 0.373 1.97  
 Supporting Our Troops and Hostages 108.196 <0.001 648.8 79.566 147.13  
 Marketing of Academic Programs 1.505 0.381 1.4 0.603 3.75  
  
Columns: category, estimate, p.value, s.value, conf.low, conf.high   
Type: invlink(link)



1. One of the standard ways to analyze count outcomes (such as the number of interactions with a post). [↑](#footnote-ref-20)