In [1]:
```
import pandas as pd
import numpy as np
import seaborn
import matplotlib.pyplot as plt
%matplotlib inline
```

In [2]:
```
from scipy.stats import mannwhitneyu
```

In [45]:
```
from scipy.stats import ttest_ind
```

Removing the duplicate entries (two extra Andrea and one extra Dan)

In [3]:
```
non_primed = pd.read_pickle("non_primed.pickle")
```

In [4]:
```
non_primed = non_primed[non_primed.rating_id != 39]
```

In [5]:
```
len(non_primed)
```

Out[5]: 27

In [36]:
```
primed = pd.read_pickle("primed.pickle")
```

In [37]:
```
primed = primed[(primed.rating_id != 27) & (primed.rating_id != 19)
& (primed.rating_id != 21)]
```

In [8]:
```
len(primed)
```

Out[8]: 27

27 participants in each group

Mann Whitney U Test

In [9]:
```
loa = ['QL1_2_loa', 'QL1_3_loa', 'QL2_3_loa', 'QL3_2_loa', 'QL3_3_l
oa', 'NW1_2_loa', 'NW1_5_loa', 'NW2_1_loa', 'NW2_3_loa', 'NW3_4_lo
a', 'CR1_1_loa', 'CR2_2_loa']
```

In [10]:
```
for i in loa:
    mann = mannwhitneyu(non_primed[i], primed[i])
    print("{}: {}".format(i, mann))
```

```
QL1_2_loa: MannwhitneyuResult(statistic=220.5, pvalue=0.0038081766
341342763)
QL1_3_loa: MannwhitneyuResult(statistic=267.5, pvalue=0.0441056996
90735869)
QL2_3_loa: MannwhitneyuResult(statistic=156.0, pvalue=9.4114063258
543464e-05)
QL3_2_loa: MannwhitneyuResult(statistic=199.5, pvalue=0.0011150792
986299668)
QL3_3_loa: MannwhitneyuResult(statistic=275.0, pvalue=0.0254488067
80823771)
NW1_2_loa: MannwhitneyuResult(statistic=281.5, pvalue=0.0639542650
00706598)
NW1_5_loa: MannwhitneyuResult(statistic=346.0, pvalue=0.3703385487
3336675)
NW2_1_loa: MannwhitneyuResult(statistic=302.5, pvalue=0.1379721027
2506444)
NW2_3_loa: MannwhitneyuResult(statistic=225.0, pvalue=0.0068006408
332967902)
NW3_4_loa: MannwhitneyuResult(statistic=271.0, pvalue=0.0493049347
31543085)
CR1_1_loa: MannwhitneyuResult(statistic=289.0, pvalue=0.0871714470
3456331)
CR2_2_loa: MannwhitneyuResult(statistic=245.0, pvalue=0.0174951658
8309984)
```

Mean and Median

Non-primed

In [25]:
```
for i in loa:
    sum_mean_median = [non_primed[i].sum(), non_primed[i].mean(), n
on_primed[i].median()]
    print("{}: sum:{}, mean:{}, median:{}".format(i, sum_mean_media
n[0], sum_mean_median[1], sum_mean_median[2]))
```

```
QL1_2_loa: sum:237, mean:8.777777777777779, median:13.0
QL1_3_loa: sum:139, mean:5.148148148148148, median:2.0
QL2_3_loa: sum:95, mean:3.5185185185185186, median:2.0
QL3_2_loa: sum:218, mean:8.074074074074074, median:11.0
QL3_3_loa: sum:273, mean:10.11111111111111, median:13.0
NW1_2_loa: sum:260, mean:9.62962962962963, median:9.0
NW1_5_loa: sum:129, mean:4.777777777777778, median:2.0
NW2_1_loa: sum:272, mean:10.074074074074074, median:9.0
NW2_3_loa: sum:238, mean:8.814814814814815, median:9.0
NW3_4_loa: sum:249, mean:9.222222222222221, median:9.0
CR1_1_loa: sum:240, mean:8.88888888888889, median:4.0
CR2_2_loa: sum:238, mean:8.814814814814815, median:6.0
```

Primed

In [29]:
```
for i in loa:
    sum_mean_median = [primed[i].sum(), primed[i].mean(), prime
d[i].median()]
    print("{}: sum:{}, mean:{}, median:{}".format(i, sum_mean_media
n[0], sum_mean_median[1], sum_mean_median[2]))
```

```
QL1_2_loa: sum:353, mean:13.074074074074074, median:16.0
QL1_3_loa: sum:87, mean:3.2222222222222223, median:1.0
QL2_3_loa: sum:224, mean:8.296296296296296, median:11.0
QL3_2_loa: sum:323, mean:11.962962962962964, median:14.0
QL3_3_loa: sum:316, mean:11.703703703703704, median:13.0
NW1_2_loa: sum:329, mean:12.185185185185185, median:18.0
NW1_5_loa: sum:112, mean:4.148148148148148, median:2.0
NW2_1_loa: sum:333, mean:12.333333333333334, median:17.0
NW2_3_loa: sum:345, mean:12.777777777777779, median:18.0
NW3_4_loa: sum:172, mean:6.37037037037037, median:6.0
CR1_1_loa: sum:182, mean:6.740740740740405, median:0.0
CR2_2_loa: sum:354, mean:13.11111111111111, median:20.0
```

Totals for High Score

In [38]:
```
primed['total_high_score'] = (primed.QL1_2_loa + primed.QL2_3_loa +
primed.QL3_2_loa + primed.QL3_3_loa + primed.NW1_2_loa + primed.NW
2_1_loa + primed.NW2_3_loa + primed.CR2_2_loa)
```

In [44]:
```
sum_mean_median = [primed['total_high_score'].sum(), primed['tota
l_high_score'].mean().round(2), primed['total_high_score'].media
n()]
print("sum:{}, mean:{}, median:{}".format(sum_mean_median[0], sum_m
ean_median[1], sum_mean_median[2]))
```

```
sum:2577, mean:95.44, median:101.0
```

In [39]:
```
non_primed['total_high_score'] = (non_primed.QL1_2_loa + non_prime
d.QL2_3_loa + non_primed.QL3_2_loa + non_primed.QL3_3_loa + non_pri
med.NW1_2_loa + non_primed.NW2_1_loa + non_primed.NW2_3_loa + non_p
rimed.CR2_2_loa)
```

In [43]:
```
sum_mean_median = [non_primed['total_high_score'].sum(), non_prime
d['total_high_score'].mean().round(2), non_primed['total_high_scor
e'].median()]
print("sum:{}, mean:{}, median:{}".format(sum_mean_median[0], sum_m
ean_median[1], sum_mean_median[2]))
```

```
sum:1831, mean:67.81, median:66.0
```

T-Test for High Score

In [46]:
```
ttest_ind(primed['total_high_score'], non_primed['total_high_scor
e'])
```

Out[46]:
```
Ttest_indResult(statistic=3.3155983783752552, pvalue=0.00167192243
86760555)
```

Totals for Low Score

In [48]:
```
sum_mean_median = [primed['neg_ex_total'].sum(), primed['neg_ex_tot
al'].mean().round(2), primed['neg_ex_total'].median()]
print("sum:{}, mean:{}, median:{}".format(sum_mean_median[0], sum_m
ean_median[1], sum_mean_median[2]))
```

```
sum:199, mean:7.37, median:5.0
```

In [50]:
```
sum_mean_median = [non_primed['neg_ex_total'].sum(), non_primed['ne
g_ex_total'].mean().round(2), non_primed['neg_ex_total'].median()]
print("sum:{}, mean:{}, median:{}".format(sum_mean_median[0], sum_m
ean_median[1], sum_mean_median[2]))
```

```
sum:268, mean:9.93, median:7.0
```

T-Test for Low Score

In [51]:
```
ttest_ind(primed['neg_ex_total'], non_primed['neg_ex_total'])
```

Out[51]:
```
Ttest_indResult(statistic=-1.0287319605642049, pvalue=0.3083671434
1563137)
```

Totals for No Example Score

In [56]:
```
sum_mean_median = [non_primed['no_ex_total'].sum(), non_primed['n
o_ex_total'].mean().round(2), non_primed['no_ex_total'].median()]
print("sum:{}, mean:{}, median:{}".format(sum_mean_median[0], sum_m
ean_median[1], sum_mean_median[2]))
```

```
sum:489, mean:18.11, median:13.0
```

In [58]:
```
sum_mean_median = [primed['no_ex_total'].sum(), primed['no_ex_tota
l'].mean().round(2), primed['no_ex_total'].median()]
print("sum:{}, mean:{}, median:{}".format(sum_mean_median[0], sum_m
ean_median[1], sum_mean_median[2]))
```

```
sum:354, mean:13.11, median:9.0
```

In [59]:
```
ttest_ind(primed['no_ex_total'], non_primed['no_ex_total'])
```

Out[59]:
```
Ttest_indResult(statistic=-1.2933712935258355, pvalue=0.2015988845
9769901)
```