

Thesis Survey Data analysis

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Summary Statistics

Aggregate Analysis

Team Coordination

Multi-item Analysis

```
## Call: ICC(x = coord_trans_df)
##
## Intraclass correlation coefficients
##
```

	type	ICC	F	df1	df2	p	lower bound
## Single_raters_absolute	ICC1	0.080	7.9	4	390	4.2e-06	0.022
## Single_random_raters	ICC2	0.083	11.0	4	312	2.2e-08	0.026
## Single_fixed_raters	ICC3	0.113	11.0	4	312	2.2e-08	0.035
## Average_raters_absolute	ICC1k	0.873	7.9	4	390	4.2e-06	0.641
## Average_random_raters	ICC2k	0.877	11.0	4	312	2.2e-08	0.674
## Average_fixed_raters	ICC3k	0.909	11.0	4	312	2.2e-08	0.744

```
##
```

	upper bound
## Single_raters_absolute	0.45
## Single_random_raters	0.45
## Single_fixed_raters	0.53
## Average_raters_absolute	0.98
## Average_random_raters	0.98
## Average_fixed_raters	0.99

```
##
## Number of subjects = 5      Number of Judges = 79
## See the help file for a discussion of the other 4 McGraw and Wong estimates,
```

Single Score Analysis

ICC1 is

```
## [1] 0.4858979
```

ICC2 is

```
## [1] 0.7645034
```

Team Effectiveness

Multi-item Analysis

```
## Call: ICC(x = eff_trans_df)
##
## Intraclass correlation coefficients
##
```

	type	ICC	F	df1	df2	p	lower bound	upper bound
## Single_raters_absolute	ICC1	0.15	15	9	780	6.9e-23	0.072	0.39
## Single_random_raters	ICC2	0.15	22	9	702	2.3e-33	0.075	0.39
## Single_fixed_raters	ICC3	0.21	22	9	702	2.3e-33	0.107	0.48
## Average_raters_absolute	ICC1k	0.93	15	9	780	6.9e-23	0.859	0.98
## Average_random_raters	ICC2k	0.94	22	9	702	2.3e-33	0.865	0.98
## Average_fixed_raters	ICC3k	0.96	22	9	702	2.3e-33	0.904	0.99

```
##
## Number of subjects = 10      Number of Judges = 79
## See the help file for a discussion of the other 4 McGraw and Wong estimates,
```

Single Score Analysis

ICC1 is

```
## [1] 0.4018889
```

ICC2 is

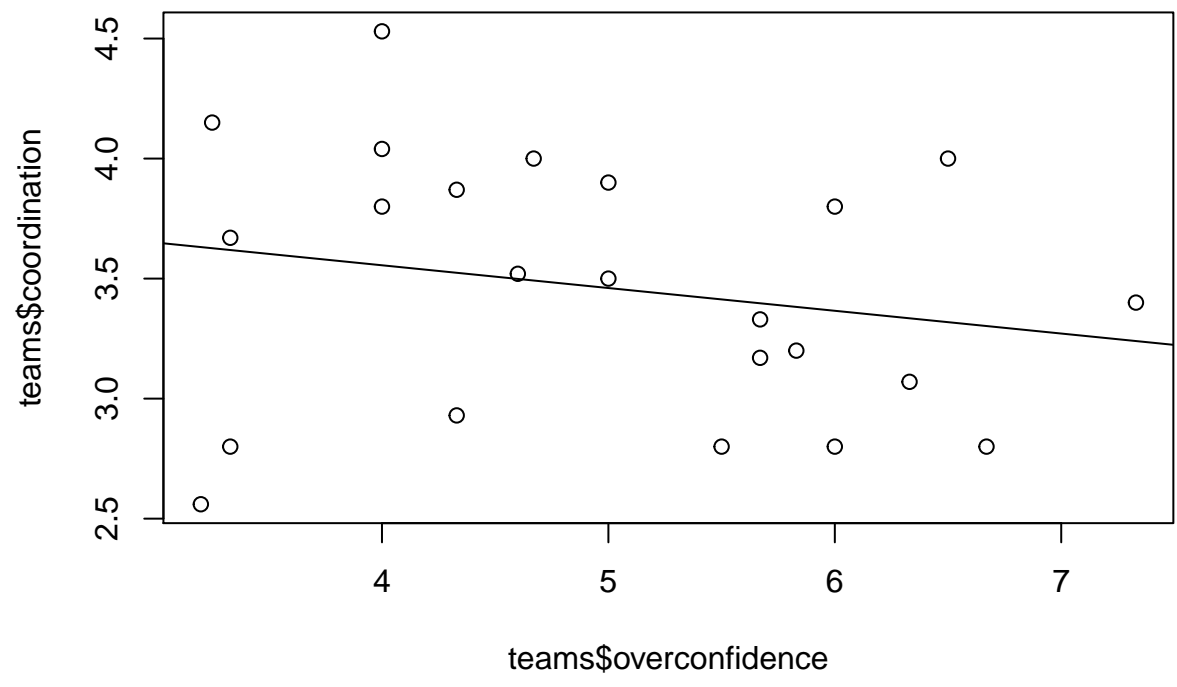
```
## [1] 0.6976965
```

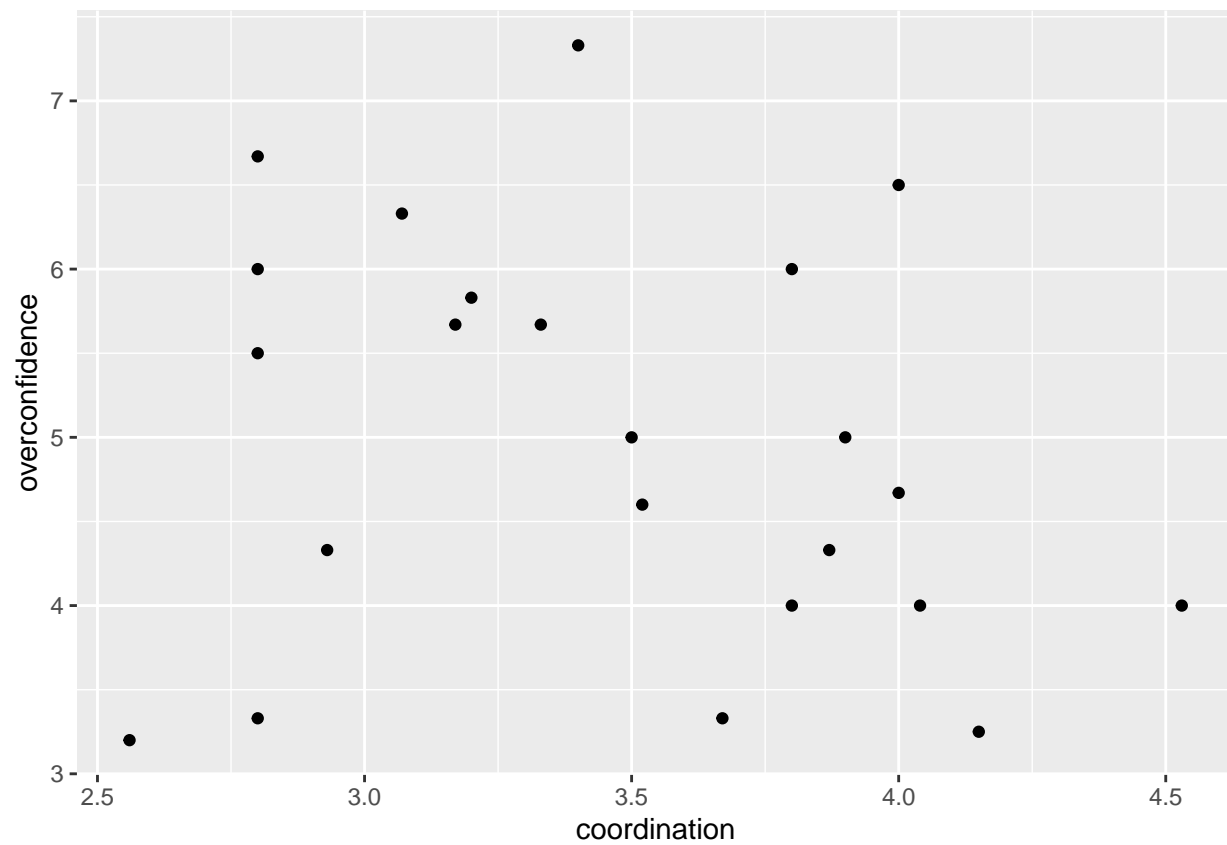
Hypothesis Testing

Hypothesis No. 1

H1: Team Overconfidence has a negative effect on team coordination

```
##  
## Call:  
## lm(formula = coordination ~ overconfidence, data = teams)  
##  
## Residuals:  
##      Min       1Q   Median       3Q      Max   
## -1.07137 -0.38350  0.03929  0.43669  0.97448   
##  
## Coefficients:  
##              Estimate Std. Error t value Pr(>|t|)      
## (Intercept)    3.93477    0.48486   8.115 6.54e-08 ***  
## overconfidence -0.09481    0.09473  -1.001   0.328      
## ---  
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
##  
## Residual standard error: 0.5368 on 21 degrees of freedom  
## Multiple R-squared:  0.04553,    Adjusted R-squared:  7.595e-05   
## F-statistic: 1.002 on 1 and 21 DF,  p-value: 0.3283
```

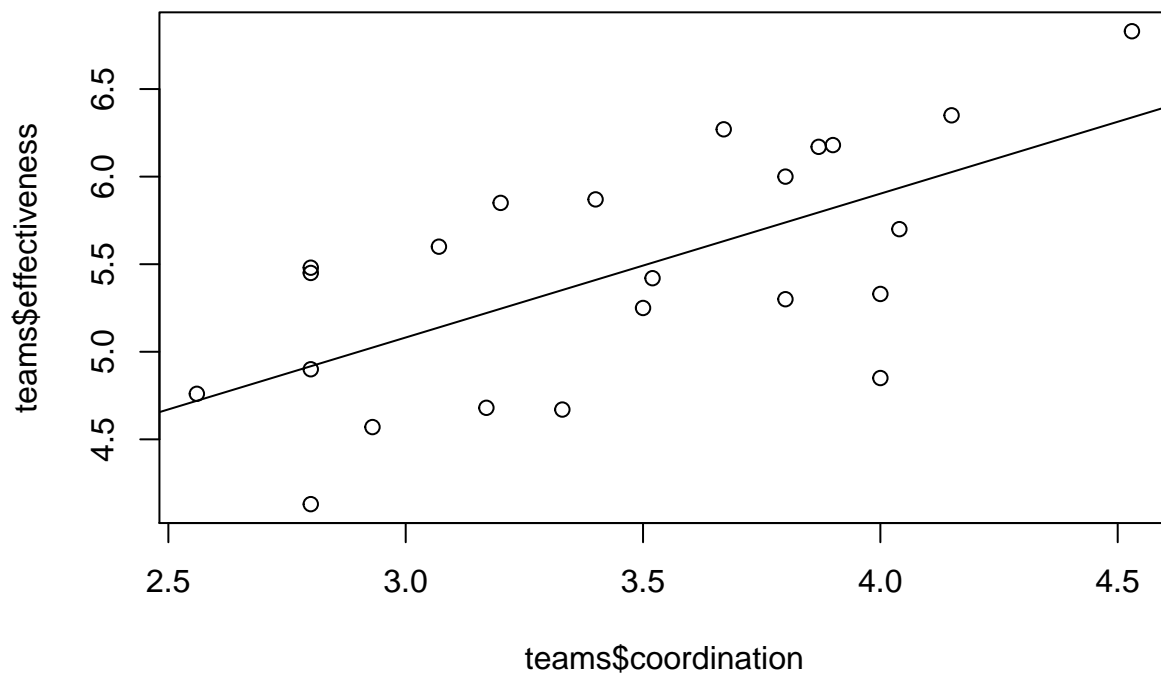


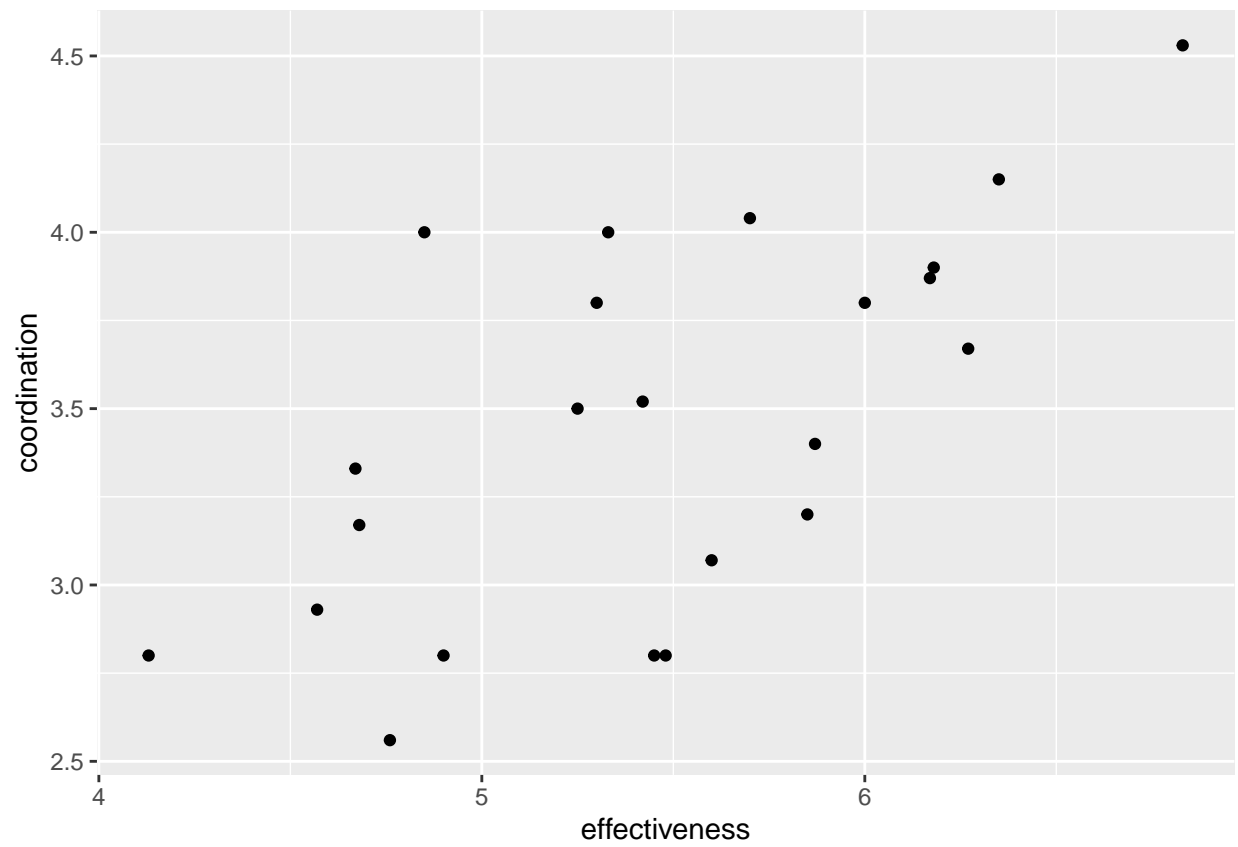


Hypothesis No. 2

H2: Team Coordination has a positive effect on team effectiveness

```
##
## Call:
## lm(formula = effectiveness ~ coordination, data = teams)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.05262 -0.44615  0.03993  0.46061  0.63838
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   2.6177     0.7321   3.576 0.001784 **
## coordination   0.8212     0.2090   3.928 0.000771 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5264 on 21 degrees of freedom
## Multiple R-squared:  0.4236, Adjusted R-squared:  0.3961
## F-statistic: 15.43 on 1 and 21 DF,  p-value: 0.0007709
```

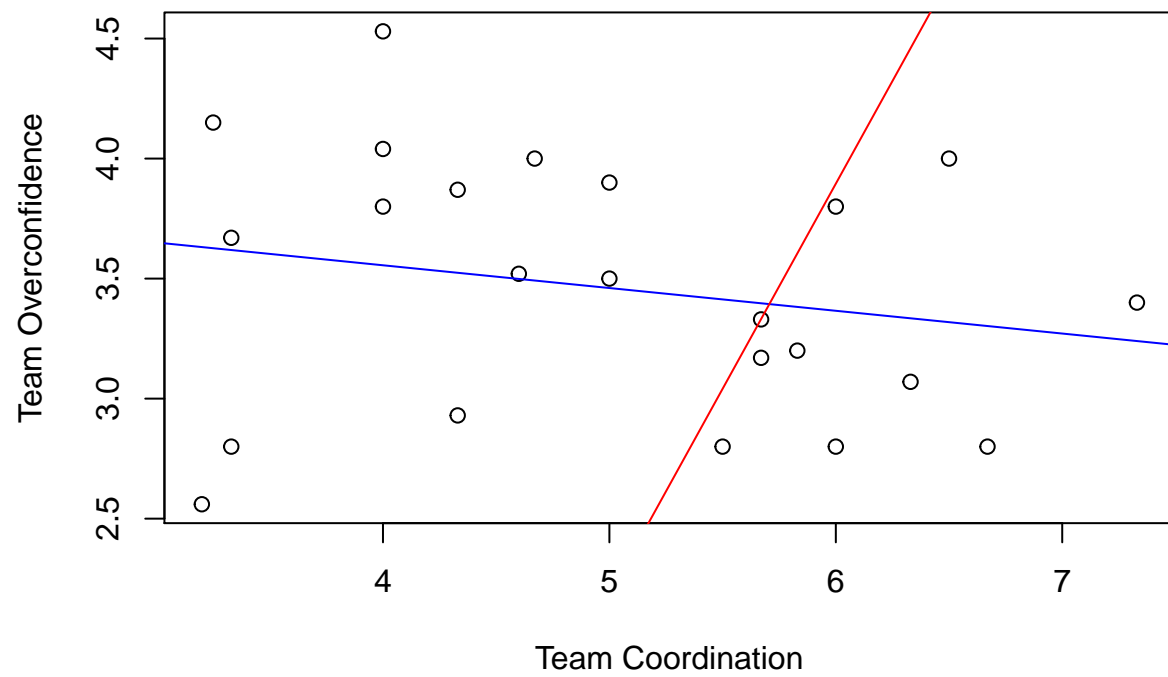


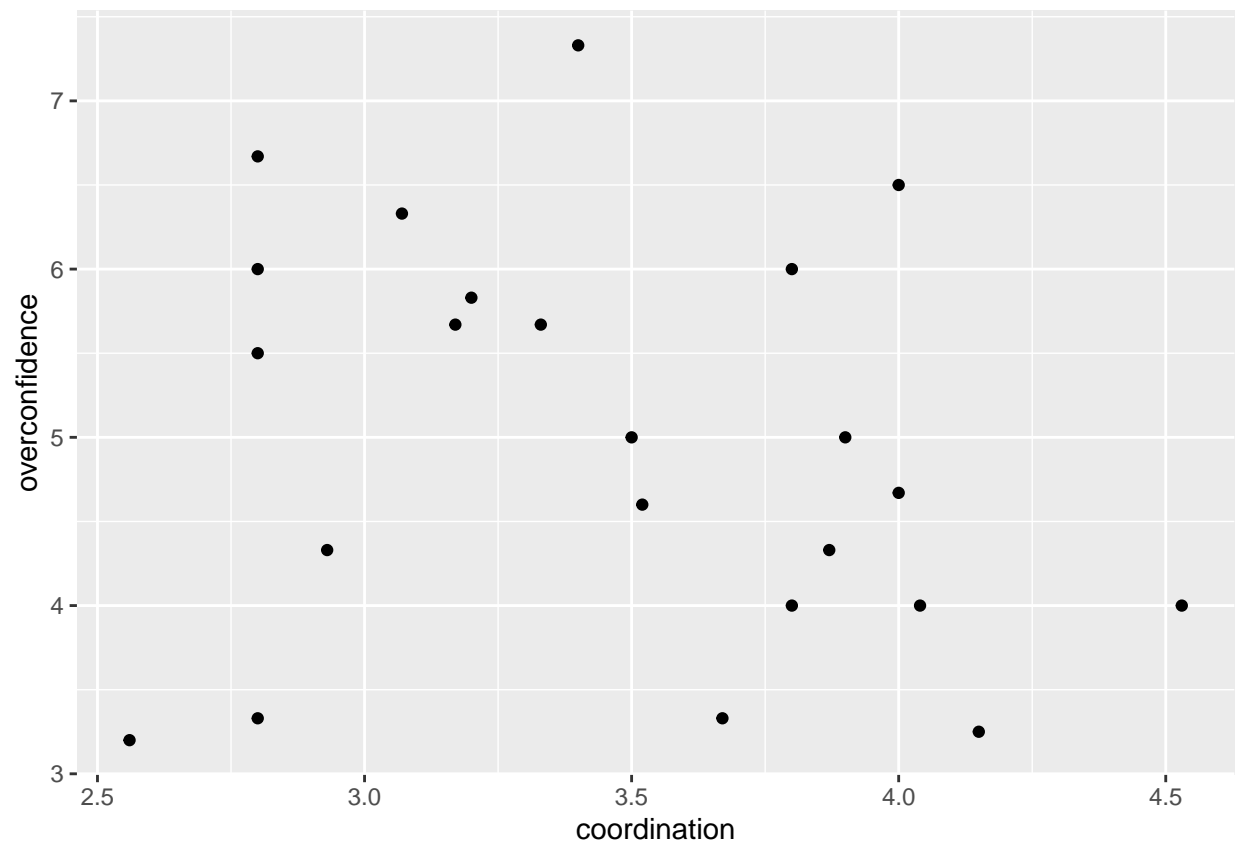


Hypothesis No. 3

H3: Voice Behavior has a moderator effect on the relationship between overconfidence and team coordination

```
##
## Call:
## lm(formula = coordination ~ overconfidence + voice_behavior +
##      inter, data = teams_voice_interaction)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.8892 -0.2471 -0.0404  0.3102  0.7715
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   -6.3579     3.8966  -1.632   0.1192
## overconfidence  1.7089     0.7269   2.351   0.0297 *
## voice_behavior  2.6272     0.9888   2.657   0.0156 *
## inter         -0.4614     0.1846  -2.499   0.0218 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4807 on 19 degrees of freedom
## Multiple R-squared:  0.3075, Adjusted R-squared:  0.1982
## F-statistic: 2.813 on 3 and 19 DF,  p-value: 0.06707
##
## Warning in abline(lm_voice_coordination, col = "red"): only using the first two
## of 4 regression coefficients
```

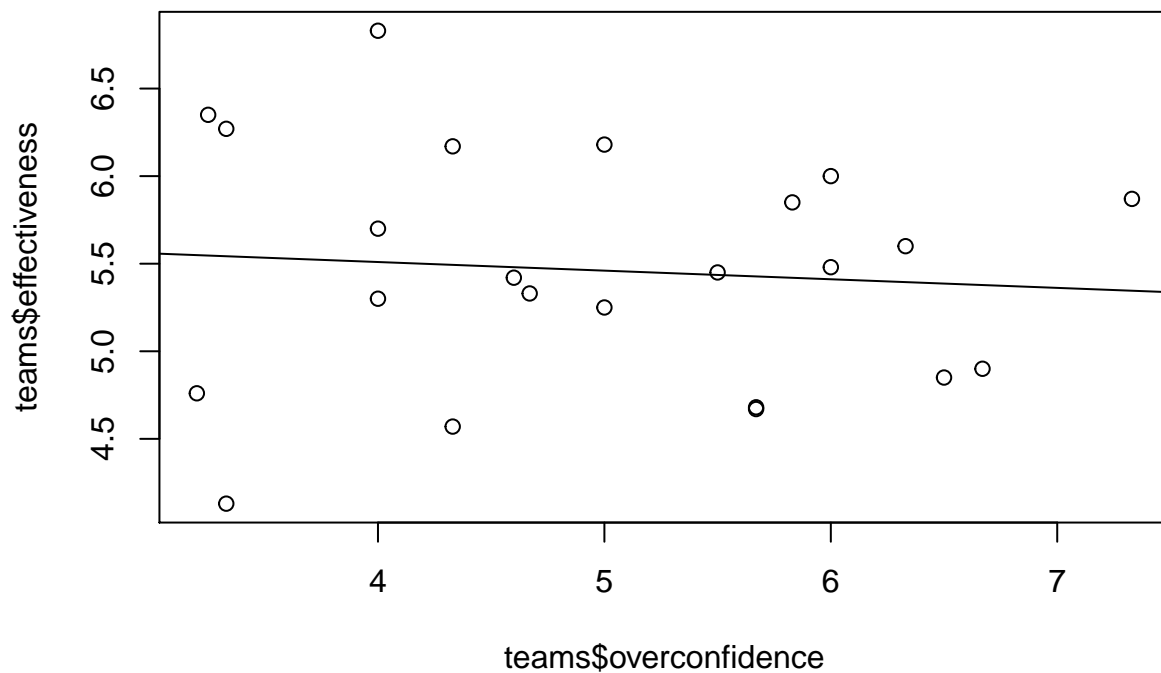


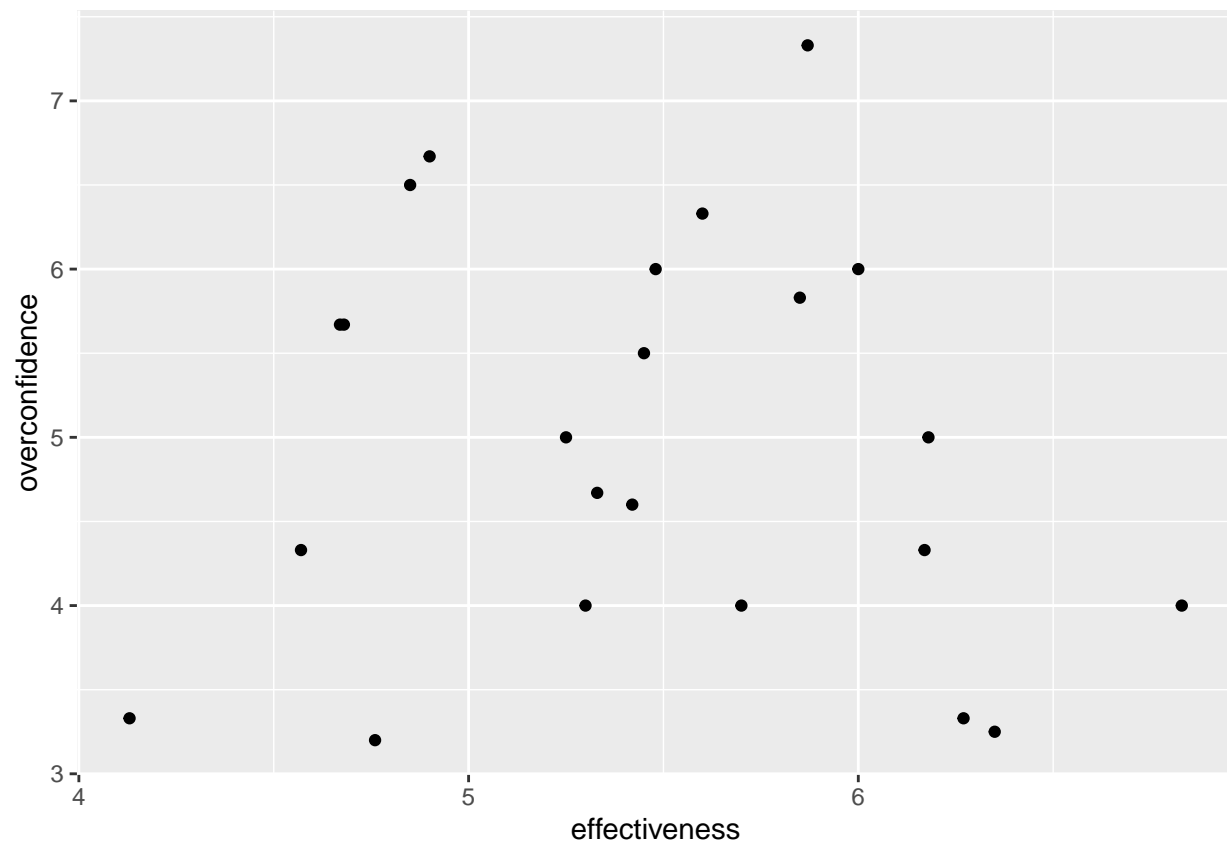
Extra Hypotheses

Hypothesis No. 1 - a

Hx1a: Team Overconfidence has a negative effect on team Effectiveness

```
##
## Call:
## lm(formula = effectiveness ~ overconfidence, data = teams)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.4125 -0.5073  0.0143  0.5566  1.3204
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    5.70648    0.62380   9.148  9e-09 ***
## overconfidence -0.04923    0.12188  -0.404   0.69
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.6906 on 21 degrees of freedom
## Multiple R-squared:  0.00771,    Adjusted R-squared:  -0.03954
## F-statistic: 0.1632 on 1 and 21 DF,  p-value: 0.6903
```

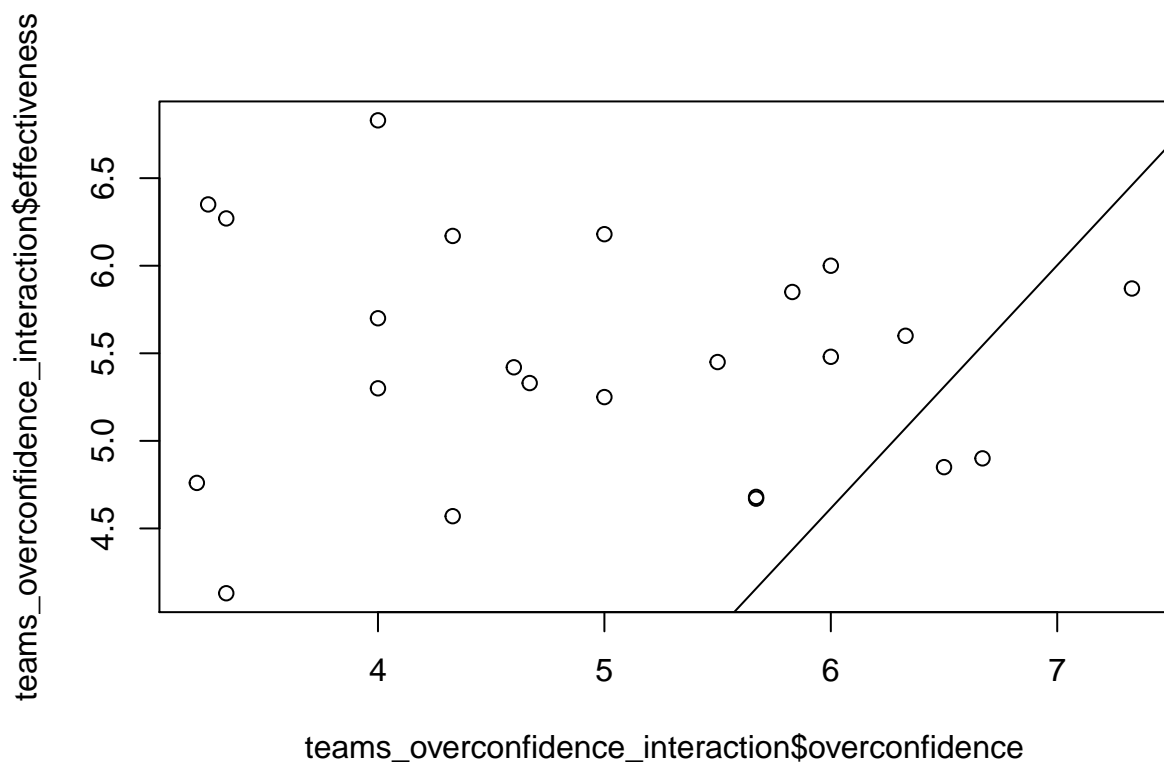


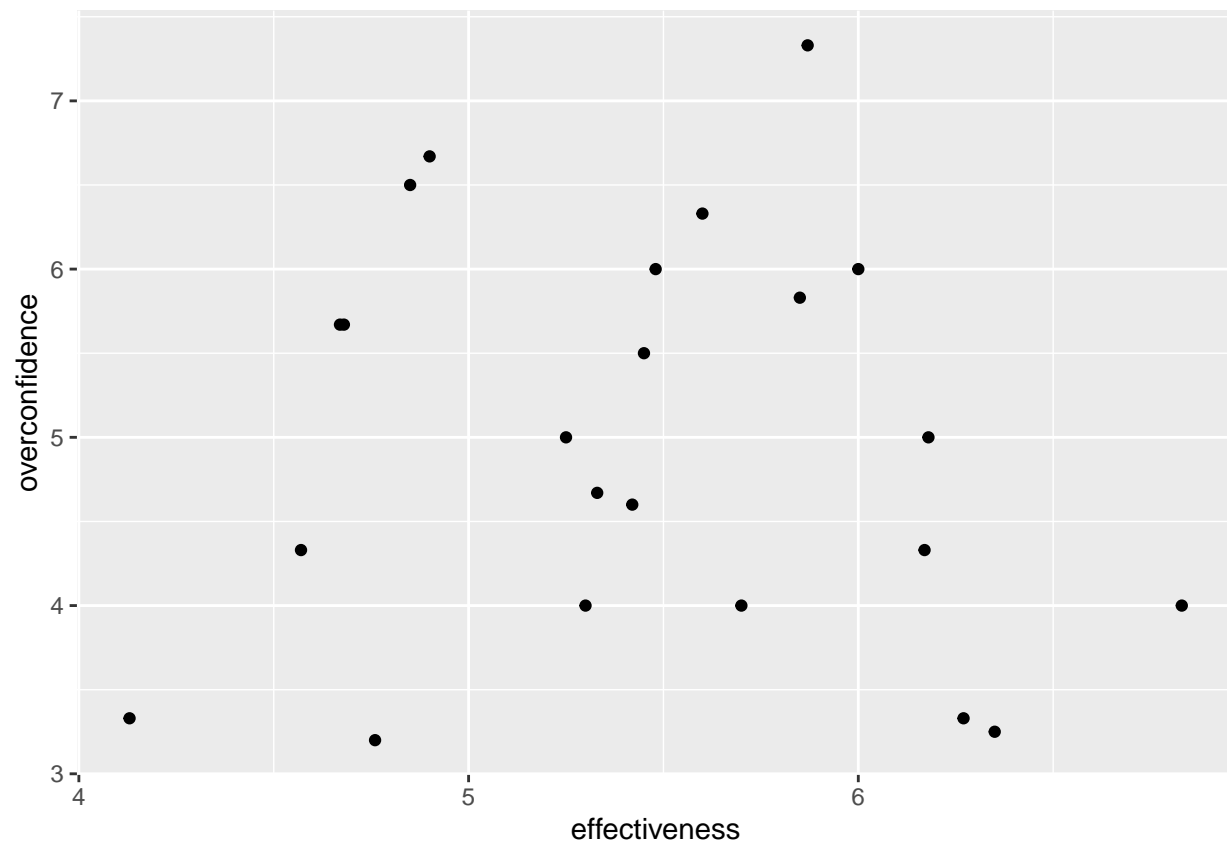


Hypothesis No. 1 - b

Hx1b: Team Overconfidence has a reverse effect on team Effectiveness mediated by team Coordination

```
##
## Call:
## lm(formula = effectiveness ~ overconfidence + coordination +
##     inter2, data = teams_overconfidence_interaction)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.67371 -0.46438 -0.02151  0.43862  0.55177
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   -3.7121     2.7257  -1.362  0.18917
## overconfidence  1.3878     0.5773   2.404  0.02658 *
## coordination   2.6678     0.7947   3.357  0.00331 **
## inter2        -0.4076     0.1713  -2.380  0.02796 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4846 on 19 degrees of freedom
## Multiple R-squared:  0.558, Adjusted R-squared:  0.4882
## F-statistic: 7.997 on 3 and 19 DF, p-value: 0.001197
##
## Warning in abline(lm_overconfidence_effectiveness_coordination): only using the
## first two of 4 regression coefficients
```





Analysis of Internal Reliability

Cronbach's Alpha is used to determine the reliability of the survey used for each variable.

Team Effectiveness

```
##
## Cronbach's alpha for the 'eff_survey' data-set
##
## Items: 10
## Sample units: 79
## alpha: 0.823
##
## Bootstrap 95% CI based on 1000 samples
## 2.5% 97.5%
## 0.710 0.887
```

Team Commitment

```
##
## Cronbach's alpha for the 'commit_survey' data-set
##
## Items: 5
## Sample units: 79
## alpha: 0.728
##
## Bootstrap 95% CI based on 1000 samples
## 2.5% 97.5%
## 0.501 0.847
```

Team Performance

```
##
## Cronbach's alpha for the 'perf_survey' data-set
##
## Items: 5
## Sample units: 79
## alpha: 0.753
##
## Bootstrap 95% CI based on 1000 samples
## 2.5% 97.5%
## 0.637 0.829
```

Team Coordination

```
##
## Cronbach's alpha for the 'coord_survey' data-set
##
## Items: 5
## Sample units: 79
## alpha: 0.67
##
## Bootstrap 95% CI based on 1000 samples
## 2.5% 97.5%
## 0.493 0.784
```


Team Voice Behavior

```
##  
## Cronbach's alpha for the 'voice_survey' data-set  
##  
## Items: 6  
## Sample units: 79  
## alpha: 0.85  
##  
## Bootstrap 95% CI based on 1000 samples  
## 2.5% 97.5%  
## 0.783 0.893
```

Overconfidence

```
##  
## Cronbach's alpha for the 'ovconf_survey' data-set  
##  
## Items: 20  
## Sample units: 79  
## alpha: 0.607  
##  
## Bootstrap 95% CI based on 1000 samples  
## 2.5% 97.5%  
## 0.214 0.769
```

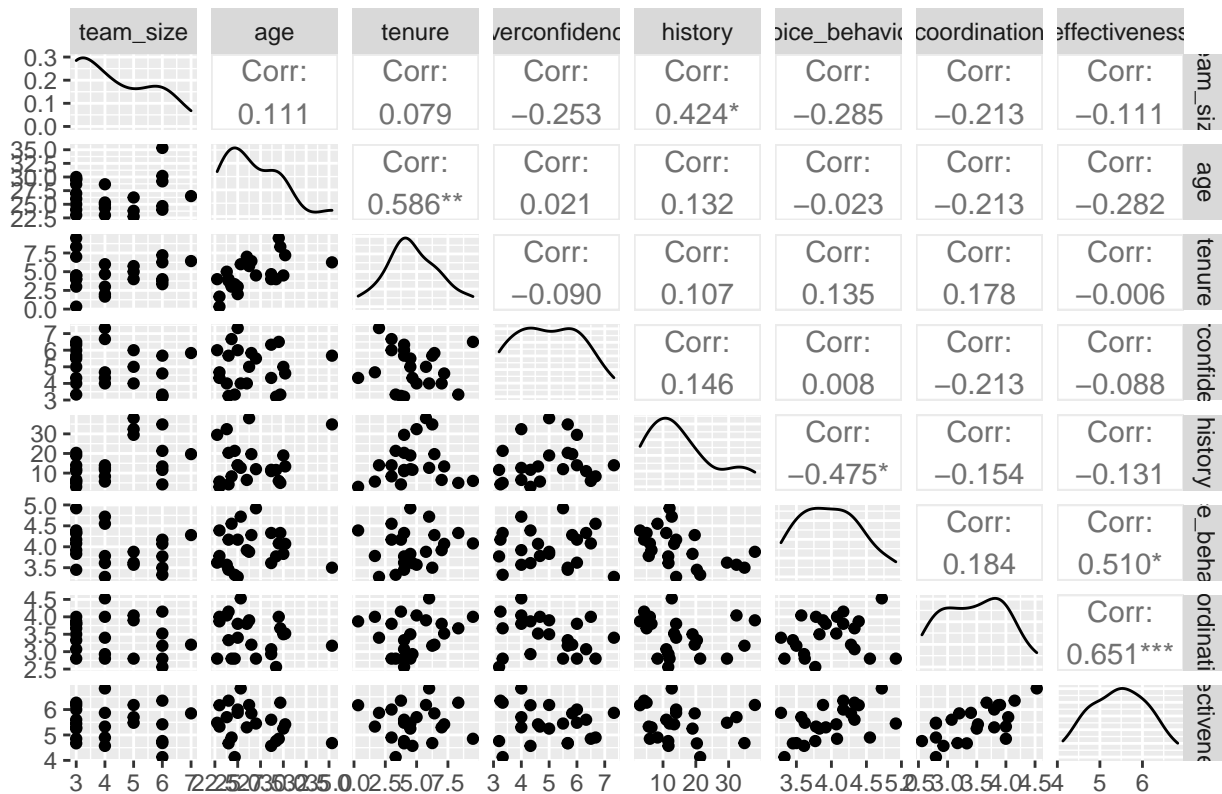
Multiple Regression Backward Elimination of Variables

$$\widehat{\text{effectiveness}} = -0.49 + 0.06(\text{team_size}) - 0.02(\text{age}) - 0.06(\text{tenure}) + 0.02(\text{overconfidence}) + 0.01(\text{history}) + 0.83(\text{voice_behavior}) + 0.8(\text{coordination}) \quad (1)$$

Stage 0: All Variables Included

Initial

Pairwise Correlation Matrix



```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.62854 -0.22927 -0.03915  0.16603  0.86074
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   -0.49250     2.01881   -0.244  0.81057
## team_size      0.06384     0.09287    0.687  0.50230
## age           -0.01548     0.04384   -0.353  0.72891
## tenure        -0.05607     0.06438   -0.871  0.39754
## overconfidence 0.01759     0.09439    0.186  0.85467
## history        0.01310     0.01287    1.018  0.32502
## voice_behavior 0.83127     0.26915    3.088  0.00749 **
## coordination   0.79609     0.22088    3.604  0.00260 **
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4735 on 15 degrees of freedom
## Multiple R-squared:  0.6668, Adjusted R-squared:  0.5113
## F-statistic: 4.289 on 7 and 15 DF,  p-value: 0.008611
```

Eliminating Overconfidence

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_overconfidence)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.59581 -0.23279 -0.03367  0.15673  0.90227
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -0.37168    1.85330   -0.201  0.84358
## team_size      0.05719    0.08310    0.688  0.50121
## age          -0.01540    0.04249   -0.362  0.72179
## tenure       -0.05675    0.06231   -0.911  0.37587
## history        0.01381    0.01191    1.160  0.26313
## voice_behavior  0.83637    0.25955    3.222  0.00532 **
## coordination   0.78602    0.20762    3.786  0.00162 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.459 on 16 degrees of freedom
## Multiple R-squared:  0.6661, Adjusted R-squared:  0.5408
## F-statistic: 5.319 on 6 and 16 DF,  p-value: 0.003449
```

Eliminating Coordination

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_coordination)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.02281 -0.36840  0.09421  0.33216  1.15332
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    3.94306    2.11665   1.863  0.0809 .
## team_size     -0.01723    0.11917  -0.145  0.8868
## age           -0.07396    0.05386  -1.373  0.1886
## tenure         0.02619    0.07962   0.329  0.7464
## overconfidence -0.06557    0.12106  -0.542  0.5955
## history         0.01427    0.01702   0.838  0.4142
## voice_behavior  0.89026    0.35533   2.505  0.0234 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.6263 on 16 degrees of freedom
## Multiple R-squared:  0.3783, Adjusted R-squared:  0.1452
## F-statistic: 1.623 on 6 and 16 DF,  p-value: 0.2048
```

Eliminating Voice Behavior

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_voice_behavior)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.9608 -0.3387  0.0967  0.4294  0.8673
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   2.926057   2.090840   1.399  0.18076
## team_size      0.047799   0.114829   0.416  0.68275
## age          -0.025175   0.054148  -0.465  0.64825
## tenure        -0.015705   0.078070  -0.201  0.84310
## overconfidence  0.047276   0.116287   0.407  0.68972
## history        -0.004059   0.014377  -0.282  0.78129
## coordination    0.837574   0.273034   3.068  0.00736 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5864 on 16 degrees of freedom
## Multiple R-squared:  0.455, Adjusted R-squared:  0.2506
## F-statistic: 2.226 on 6 and 16 DF, p-value: 0.09416
```

Eliminating History

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_history)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.78325 -0.16354  0.01271  0.13269  0.81803
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -0.17433     1.99666  -0.087  0.93151
## team_size      0.10072     0.08560   1.177  0.25657
## age          -0.01595     0.04388  -0.363  0.72108
## tenure       -0.04642     0.06375  -0.728  0.47703
## overconfidence  0.04624     0.09019   0.513  0.61522
## voice_behavior  0.71306     0.24306   2.934  0.00974 **
## coordination   0.80175     0.22105   3.627  0.00227 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.474 on 16 degrees of freedom
## Multiple R-squared:  0.6438, Adjusted R-squared:  0.5103
## F-statistic:  4.82 on 6 and 16 DF,  p-value: 0.005457
```

Eliminating Tenure

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_tenure)
##
## Residuals:
```

	Min	1Q	Median	3Q	Max
	-0.81388	-0.18447	0.03224	0.19101	0.92059

```
##
## Coefficients:
```

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.34513	1.76152	0.196	0.84714
team_size	0.05901	0.09200	0.641	0.53031
age	-0.04003	0.03332	-1.202	0.24703
overconfidence	0.02229	0.09352	0.238	0.81460
history	0.01145	0.01263	0.906	0.37838
voice_behavior	0.78368	0.26155	2.996	0.00855 **
coordination	0.72789	0.20497	3.551	0.00266 **

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4699 on 16 degrees of freedom
## Multiple R-squared:  0.65, Adjusted R-squared:  0.5187
## F-statistic: 4.952 on 6 and 16 DF, p-value: 0.004823
```


Eliminating Age

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_age)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.61751 -0.21310 -0.02139  0.16785  0.85367
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -0.96501    1.46974  -0.657 0.520781
## team_size      0.06461    0.09027   0.716 0.484427
## tenure       -0.07069    0.04794  -1.475 0.159714
## overconfidence  0.01726    0.09177   0.188 0.853173
## history        0.01314    0.01251   1.050 0.309120
## voice_behavior  0.83807    0.26101   3.211 0.005452 **
## coordination   0.82496    0.19950   4.135 0.000777 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4604 on 16 degrees of freedom
## Multiple R-squared:  0.6641, Adjusted R-squared:  0.5381
## F-statistic: 5.271 on 6 and 16 DF,  p-value: 0.003599
```

Eliminating Team Size

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_team_size)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.63126 -0.24063 -0.02852  0.21967  0.90123
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   0.028413   1.840108   0.015  0.98787
## age          -0.016190   0.043096  -0.376  0.71209
## tenure       -0.053427   0.063198  -0.845  0.41036
## overconfidence -0.007364   0.085684  -0.086  0.93258
## history       0.016548   0.011653   1.420  0.17476
## voice_behavior  0.820917   0.264264   3.106  0.00679 **
## coordination   0.759307   0.210741   3.603  0.00238 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4656 on 16 degrees of freedom
## Multiple R-squared:  0.6563, Adjusted R-squared:  0.5275
## F-statistic: 5.093 on 6 and 16 DF,  p-value: 0.004234
```

Outcome

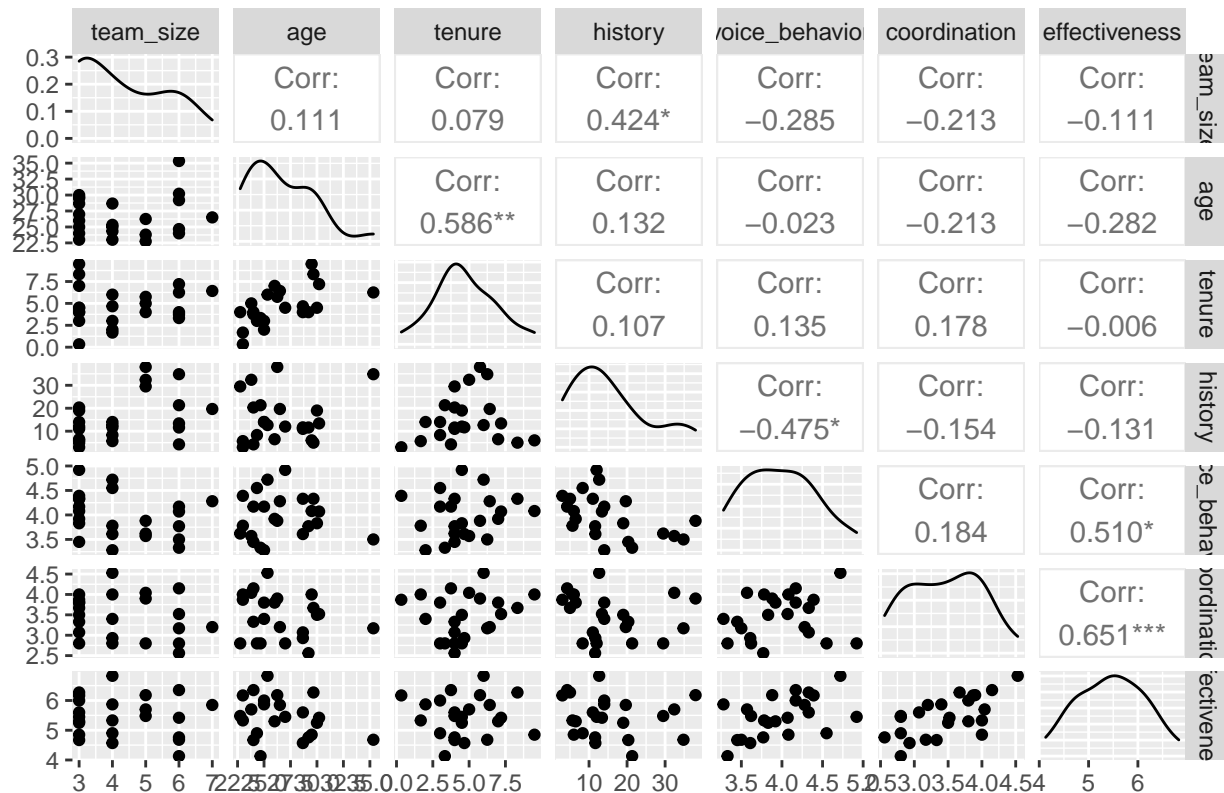
Overconfidence is the least correlated with the Effectiveness, so it is eliminated.

$$\widehat{\text{effectiveness}} = -0.37 + 0.06(\text{team_size}) - 0.02(\text{age}) - 0.06(\text{tenure}) + \\ 0.01(\text{history}) + 0.84(\text{voice_behavior}) + 0.79(\text{coordination}) \quad (2)$$

Stage 1: Overconfidence is Eliminated

Initial

Pairwise Correlation Matrix



```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.59581 -0.23279 -0.03367  0.15673  0.90227
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -0.37168    1.85330   -0.201  0.84358
## team_size      0.05719    0.08310    0.688  0.50121
## age          -0.01540    0.04249   -0.362  0.72179
## tenure       -0.05675    0.06231   -0.911  0.37587
## history        0.01381    0.01191    1.160  0.26313
## voice_behavior  0.83637    0.25955    3.222  0.00532 **
## coordination  0.78602    0.20762    3.786  0.00162 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.459 on 16 degrees of freedom
## Multiple R-squared:  0.6661, Adjusted R-squared:  0.5408
## F-statistic: 5.319 on 6 and 16 DF,  p-value: 0.003449
```

Eliminating Coordination

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_coordination)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.09496 -0.31082  0.02896  0.34751  1.00334
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   3.686304   2.019551   1.825   0.0856 .
## team_size      0.005092   0.109471   0.047   0.9634
## age          -0.077211   0.052401  -1.473   0.1589
## tenure         0.033039   0.076961   0.429   0.6731
## history        0.011489   0.015885   0.723   0.4794
## voice_behavior 0.872970   0.346460   2.520   0.0220 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.6131 on 17 degrees of freedom
## Multiple R-squared:  0.3669, Adjusted R-squared:  0.1807
## F-statistic: 1.97 on 5 and 17 DF, p-value: 0.1351
```

Eliminating Voice Behavior

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_voice_behavior)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.90144 -0.34809  0.02491  0.43369  0.79225
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   3.311244    1.817518   1.822  0.0861 .
## team_size     0.029456    0.102969   0.286  0.7783
## age          -0.025118    0.052802  -0.476  0.6403
## tenure        -0.016897    0.076076  -0.222  0.8269
## history       -0.002403    0.013445  -0.179  0.8603
## coordination   0.810941    0.258470   3.137  0.0060 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5718 on 17 degrees of freedom
## Multiple R-squared:  0.4493, Adjusted R-squared:  0.2874
## F-statistic: 2.774 on 5 and 17 DF,  p-value: 0.05208
```

Eliminating History

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_history)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.71318 -0.16321 -0.01143  0.18738  0.82834
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    0.22441    1.79861   0.125  0.90217
## team_size      0.08733    0.07973   1.095  0.28867
## age           -0.01579    0.04292  -0.368  0.71754
## tenure        -0.04688    0.06235  -0.752  0.46235
## voice_behavior  0.70917    0.23762   2.985  0.00833 **
## coordination   0.77362    0.20944   3.694  0.00180 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4636 on 17 degrees of freedom
## Multiple R-squared:  0.638, Adjusted R-squared:  0.5315
## F-statistic: 5.992 on 5 and 17 DF,  p-value: 0.00226
```

Eliminating Tenure

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_tenure)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.77514 -0.20528  0.02038  0.17158  0.97433
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    0.51182    1.57131   0.326  0.74861
## team_size      0.05048    0.08236   0.613  0.54806
## age           -0.04031    0.03236  -1.246  0.22976
## history        0.01233    0.01174   1.050  0.30821
## voice_behavior  0.78944    0.25311   3.119  0.00625 **
## coordination   0.71403    0.19102   3.738  0.00164 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4567 on 17 degrees of freedom
## Multiple R-squared:  0.6487, Adjusted R-squared:  0.5454
## F-statistic: 6.279 on 5 and 17 DF,  p-value: 0.001786
```


Eliminating Age

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_age)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.58544 -0.21699 -0.03302  0.16233  0.89446
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -0.84402     1.28346  -0.658 0.519593
## team_size      0.05808     0.08091   0.718 0.482639
## tenure       -0.07129     0.04645  -1.535 0.143280
## history        0.01385     0.01160   1.194 0.249017
## voice_behavior  0.84305     0.25219   3.343 0.003856 **
## coordination   0.81494     0.18672   4.364 0.000422 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4471 on 17 degrees of freedom
## Multiple R-squared:  0.6633, Adjusted R-squared:  0.5643
## F-statistic: 6.698 on 5 and 17 DF,  p-value: 0.001282
```

Eliminating Team Size

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_team_size)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.64748 -0.24150 -0.02411  0.22325  0.88290
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -0.004267   1.747035  -0.002  0.99808
## age          -0.016266   0.041810  -0.389  0.70207
## tenure       -0.052954   0.061093  -0.867  0.39813
## history       0.016374   0.011134   1.471  0.15967
## voice_behavior 0.817878   0.254126   3.218  0.00504 **
## coordination  0.762367   0.201558   3.782  0.00149 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4518 on 17 degrees of freedom
## Multiple R-squared:  0.6562, Adjusted R-squared:  0.555
## F-statistic: 6.489 on 5 and 17 DF,  p-value: 0.001511
```

Outcome

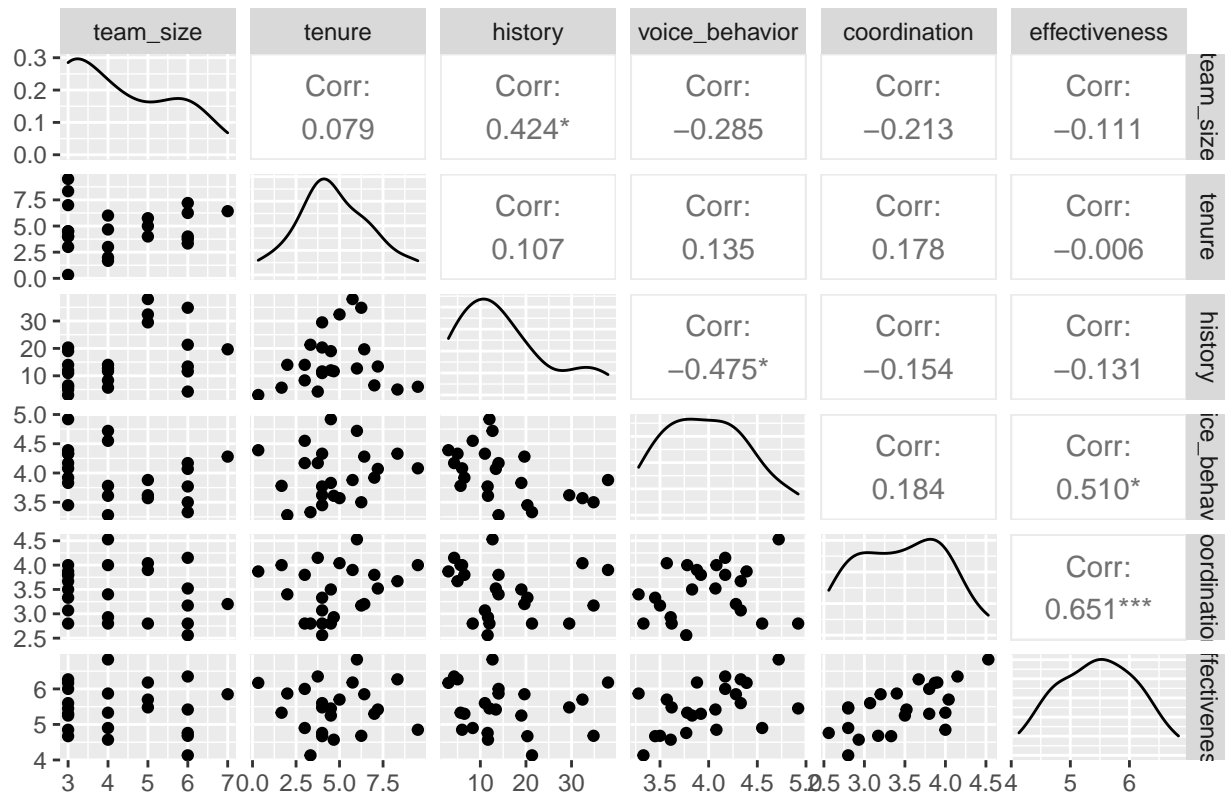
Age has the least correlation with the Effectiveness, so it is eliminated.

$$\widehat{\text{effectiveness}} = -0.84 + 0.06(\text{team_size}) - 0.07(\text{tenure}) + 0.01(\text{history}) + \\ 0.84(\text{voice_behavior}) + 0.81(\text{coordination}) \quad (3)$$

Stage 2: Age is Eliminated

Initial

Pairwise Correlation Matrix



```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.58544 -0.21699 -0.03302  0.16233  0.89446
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -0.84402    1.28346   -0.658 0.519593
## team_size      0.05808    0.08091    0.718 0.482639
## tenure       -0.07129    0.04645   -1.535 0.143280
## history        0.01385    0.01160    1.194 0.249017
## voice_behavior  0.84305    0.25219    3.343 0.003856 **
## coordination  0.81494    0.18672    4.364 0.000422 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4471 on 17 degrees of freedom
## Multiple R-squared:  0.6633, Adjusted R-squared:  0.5643
## F-statistic: 6.698 on 5 and 17 DF, p-value: 0.001282
```

Eliminating Coordination

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_coordination)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.06289 -0.46376  0.06147  0.38072  0.97927
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   1.7857442   1.6037247    1.113   0.2801
## team_size     -0.0009279   0.1128976   -0.008   0.9935
## tenure        -0.0330196   0.0645573   -0.511   0.6152
## history        0.0111862   0.0163923    0.682   0.5037
## voice_behavior  0.9201626   0.3560216    2.585   0.0187 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.6328 on 18 degrees of freedom
## Multiple R-squared:  0.2861, Adjusted R-squared:  0.1274
## F-statistic: 1.803 on 4 and 18 DF,  p-value: 0.1723
```

Eliminating Voice Behavior

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_voice_behavior)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.86416 -0.38862 -0.01612  0.44893  0.78961
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   2.58509    0.96506   2.679   0.0153 *
## team_size      0.03056    0.10071   0.303   0.7650
## tenure       -0.04020    0.05694  -0.706   0.4892
## history       -0.00256    0.01315  -0.195   0.8478
## coordination  0.85866    0.23303   3.685   0.0017 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5594 on 18 degrees of freedom
## Multiple R-squared:  0.442, Adjusted R-squared:  0.318
## F-statistic: 3.565 on 4 and 18 DF,  p-value: 0.02611
```

Eliminating History

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_history)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.7028 -0.2035 -0.0311  0.1975  0.8202
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -0.25836    1.19988  -0.215 0.831940
## team_size      0.08832    0.07775   1.136 0.270874
## tenure       -0.06176    0.04630  -1.334 0.198876
## voice_behavior  0.71569    0.23119   3.096 0.006238 **
## coordination   0.80323    0.18865   4.258 0.000473 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4524 on 18 degrees of freedom
## Multiple R-squared:  0.6351, Adjusted R-squared:  0.554
## F-statistic: 7.832 on 4 and 18 DF,  p-value: 0.0007703
```

Eliminating Tenure

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_tenure)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.9340 -0.2412 -0.1023  0.2372  1.0219
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -0.58800    1.31960   -0.446  0.661209
## team_size      0.04679    0.08356    0.560  0.582410
## history        0.01079    0.01185    0.910  0.374719
## voice_behavior  0.76557    0.25622    2.988  0.007890 **
## coordination   0.76085    0.19014    4.002  0.000837 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4636 on 18 degrees of freedom
## Multiple R-squared:  0.6167, Adjusted R-squared:  0.5315
## F-statistic: 7.239 on 4 and 18 DF,  p-value: 0.00117
```


Eliminating Team Size

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_team_size)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.63737 -0.29321 -0.04652  0.19393  0.87433
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -0.49758    1.17312  -0.424  0.676485
## tenure       -0.06826    0.04563  -1.496  0.152049
## history       0.01645    0.01087   1.514  0.147395
## voice_behavior 0.82463    0.24748   3.332  0.003709 **
## coordination  0.79254    0.18160   4.364  0.000374 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4411 on 18 degrees of freedom
## Multiple R-squared:  0.6531, Adjusted R-squared:  0.576
## F-statistic: 8.473 on 4 and 18 DF,  p-value: 0.0005002
```

Outcome

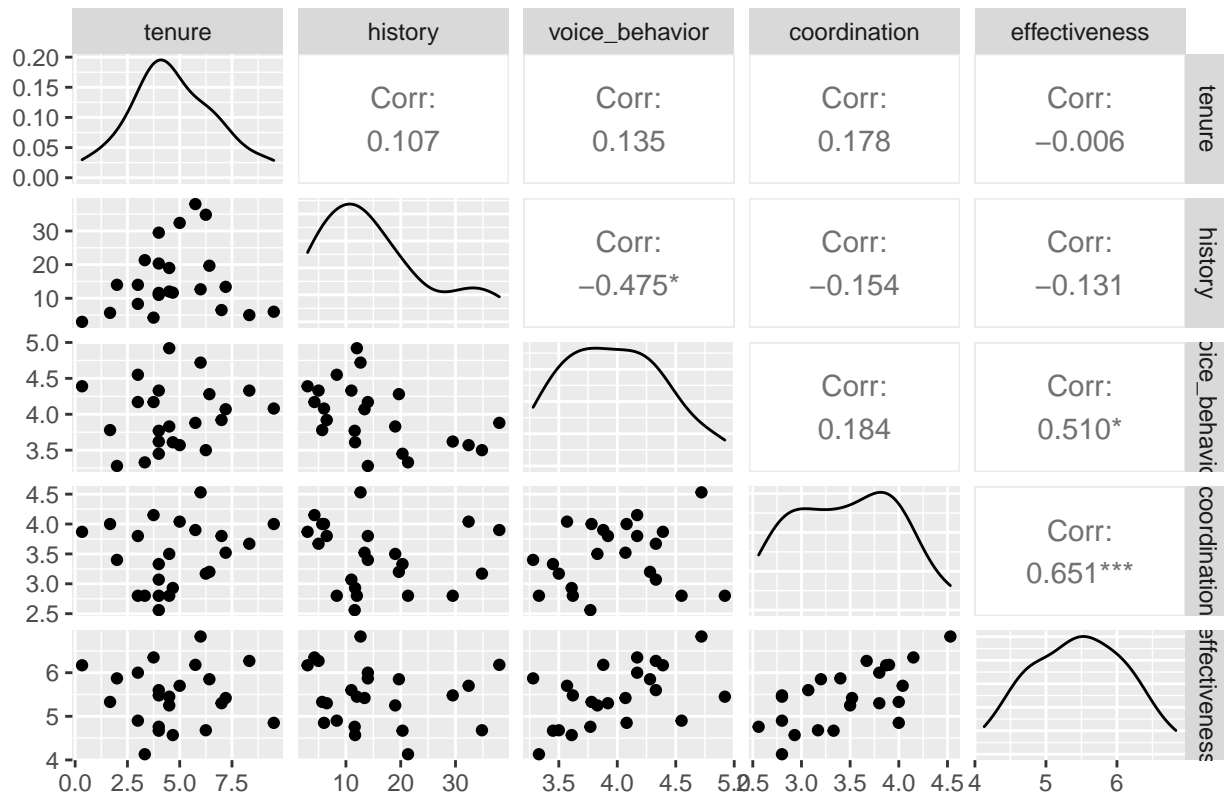
Team Size seems to have the least correlation with the Effectiveness, so it is eliminated.

$$\widehat{\text{effectiveness}} = -0.5 - 0.07(\text{tenure}) + 0.02(\text{history}) + 0.82(\text{voice_behavior}) + 0.79(\text{coordination}) \quad (4)$$

Stage 3: Team Size is Eliminated

Initial

Pairwise Correlation Matrix



```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.63737 -0.29321 -0.04652  0.19393  0.87433
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -0.49758    1.17312   -0.424  0.676485
## tenure       -0.06826    0.04563   -1.496  0.152049
## history        0.01645    0.01087    1.514  0.147395
## voice_behavior  0.82463    0.24748    3.332  0.003709 **
## coordination  0.79254    0.18160    4.364  0.000374 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4411 on 18 degrees of freedom
## Multiple R-squared:  0.6531, Adjusted R-squared:  0.576
## F-statistic: 8.473 on 4 and 18 DF,  p-value: 0.0005002
```

Eliminating Coordination

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_coordination)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.06317 -0.46415  0.06129  0.38104  0.97964
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    1.78124    1.46690   1.214   0.240
## tenure        -0.03305    0.06272  -0.527   0.604
## history         0.01114    0.01508   0.739   0.469
## voice_behavior  0.92050    0.34421   2.674   0.015 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.6159 on 19 degrees of freedom
## Multiple R-squared:  0.2861, Adjusted R-squared:  0.1733
## F-statistic: 2.538 on 3 and 19 DF,  p-value: 0.08724
```

Eliminating Voice Behavior

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_voice_behavior)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.88853 -0.40587  0.03136  0.42534  0.76418
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  2.7294401  0.8193399   3.331  0.00351 **
## tenure      -0.0389490  0.0554180  -0.703  0.49069
## history      -0.0009833  0.0117871  -0.083  0.93439
## coordination  0.8462506  0.2238636   3.780  0.00127 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5459 on 19 degrees of freedom
## Multiple R-squared:  0.4391, Adjusted R-squared:  0.3506
## F-statistic: 4.959 on 3 and 19 DF,  p-value: 0.01042
```

Eliminating History

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_history)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.82767 -0.25254 -0.00891  0.18329  0.76261
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   0.51162    0.99762   0.513 0.613972
## tenure       -0.05362    0.04609  -1.163 0.259071
## voice_behavior 0.64421    0.22416   2.874 0.009719 **
## coordination  0.76176    0.18649   4.085 0.000631 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4558 on 19 degrees of freedom
## Multiple R-squared:  0.6089, Adjusted R-squared:  0.5472
## F-statistic: 9.862 on 3 and 19 DF,  p-value: 0.0003884
```

Eliminating Tenure

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_tenure)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.9642 -0.2525 -0.1032  0.2415  1.0011
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -0.31542    1.20418  -0.262  0.796190
## history        0.01301    0.01096   1.187  0.249904
## voice_behavior  0.75329    0.25063   3.006  0.007271 **
## coordination   0.74453    0.18447   4.036  0.000706 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4552 on 19 degrees of freedom
## Multiple R-squared:  0.61, Adjusted R-squared:  0.5484
## F-statistic: 9.906 on 3 and 19 DF,  p-value: 0.0003788
```

Outcome

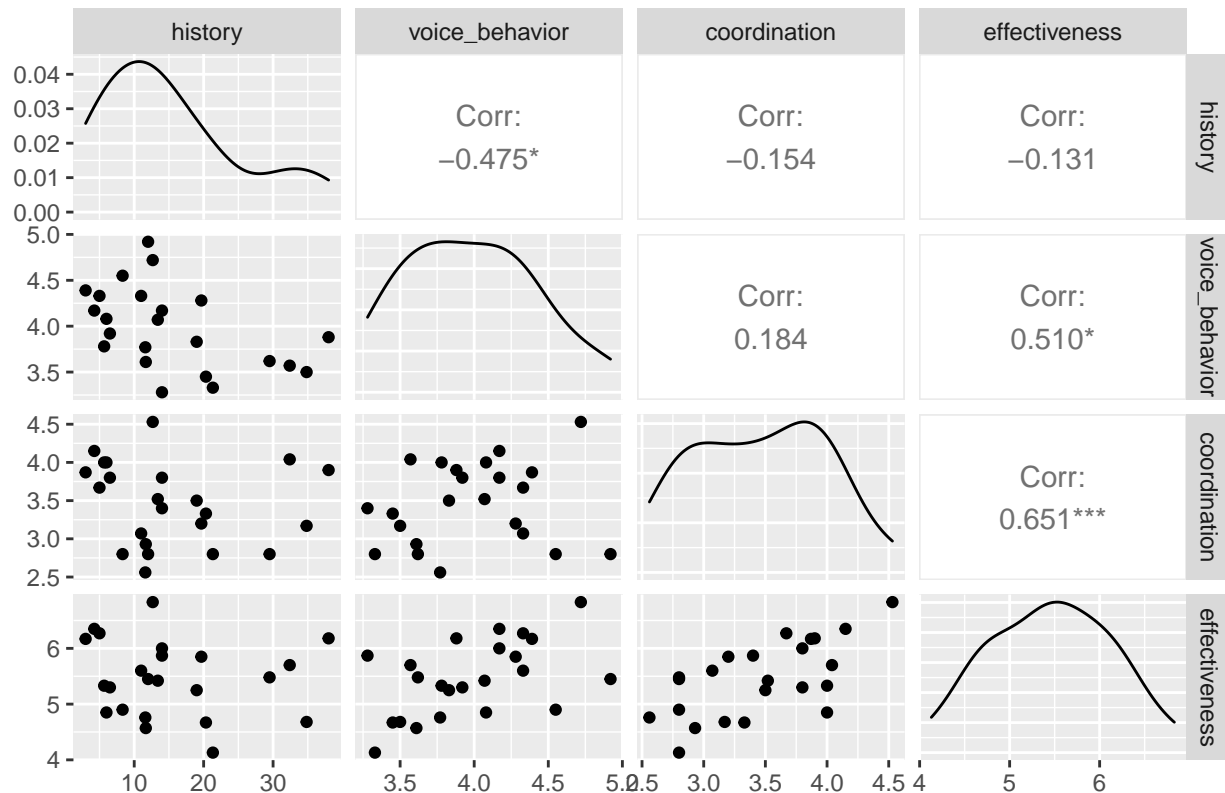
The elimination of either History or Tenure seems to reduce the goodness of fit of the model. However, eliminating tenure has less negative effect on the model, so it is excluded.

$$\widehat{\text{effectiveness}} = -0.32 + 0.01(\text{history}) + 0.75(\text{voice_behavior}) + 0.74(\text{coordination}) \quad (5)$$

Stage 4: Tenure is Eliminated

Initial

Pairwise Correlation Matrix



```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.9642 -0.2525 -0.1032  0.2415  1.0011
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -0.31542    1.20418   -0.262  0.796190
## history       0.01301    0.01096    1.187  0.249904
## voice_behavior 0.75329    0.25063    3.006  0.007271 **
## coordination  0.74453    0.18447    4.036  0.000706 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4552 on 19 degrees of freedom
## Multiple R-squared:  0.61, Adjusted R-squared:  0.5484
## F-statistic: 9.906 on 3 and 19 DF, p-value: 0.0003788
```

Eliminating Coordination

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_coordination)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.99590 -0.50411 -0.02275  0.45202  1.03983
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   1.803285   1.439580   1.253   0.2248
## history        0.009582   0.014516   0.660   0.5167
## voice_behavior 0.881934   0.330215   2.671   0.0147 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.6047 on 20 degrees of freedom
## Multiple R-squared:  0.2756, Adjusted R-squared:  0.2032
## F-statistic: 3.805 on 2 and 20 DF,  p-value: 0.03978
```

Eliminating Voice Behavior

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_voice_behavior)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.06932 -0.46020  0.02627  0.45303  0.61752
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   2.67193    0.80486   3.320  0.00342 **
## history       -0.00213    0.01153  -0.185  0.85524
## coordination   0.81504    0.21662   3.763  0.00123 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5389 on 20 degrees of freedom
## Multiple R-squared:  0.4246, Adjusted R-squared:  0.367
## F-statistic: 7.378 on 2 and 20 DF,  p-value: 0.003981
```

Eliminating History

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_history)
##
## Residuals:
```

	Min	1Q	Median	3Q	Max
	-1.06368	-0.32158	0.07167	0.24025	0.88613

```
##
## Coefficients:
```

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.4877	1.0062	0.485	0.633136
voice_behavior	0.6166	0.2249	2.742	0.012562 *
coordination	0.7276	0.1858	3.916	0.000856 ***

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4598 on 20 degrees of freedom
## Multiple R-squared:  0.5811, Adjusted R-squared:  0.5392
## F-statistic: 13.87 on 2 and 20 DF,  p-value: 0.0001665
```

Outcome

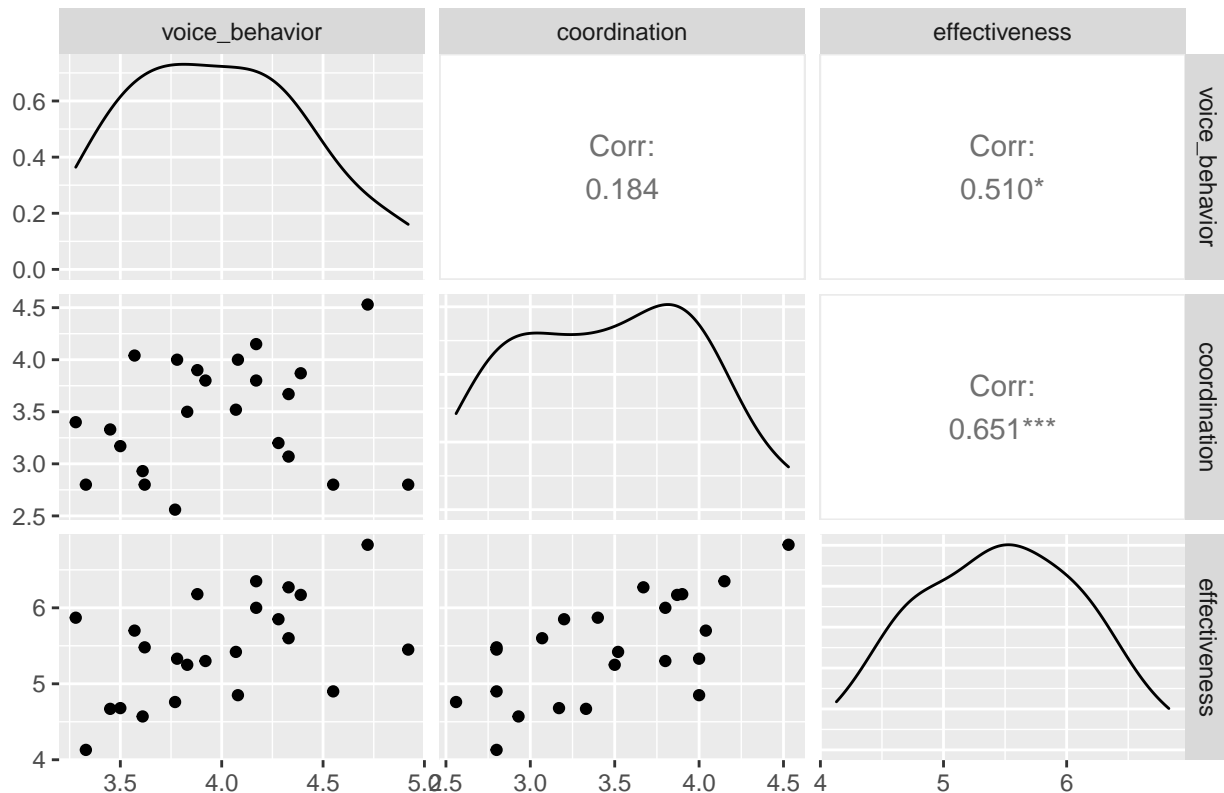
History has the least correlation with the Effectiveness, so it is eliminated.

$$\widehat{\text{effectiveness}} = 0.49 + 0.62(\text{voice_behavior}) + 0.73(\text{coordination}) \quad (6)$$

Stage 5: History is Eliminated

Initial

Pairwise Correlation Matrix



```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.06368 -0.32158  0.07167  0.24025  0.88613
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    0.4877     1.0062   0.485 0.633136
## voice_behavior  0.6166     0.2249   2.742 0.012562 *
## coordination    0.7276     0.1858   3.916 0.000856 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4598 on 20 degrees of freedom
## Multiple R-squared:  0.5811, Adjusted R-squared:  0.5392
## F-statistic: 13.87 on 2 and 20 DF,  p-value: 0.0001665
```

Eliminating Coordination

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_coordination)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.0047 -0.4724 -0.0942  0.4638  0.9540
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)      2.3627      1.1480   2.058  0.0522 .
## voice_behavior    0.7785      0.2867   2.715  0.0130 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5965 on 21 degrees of freedom
## Multiple R-squared:  0.2598, Adjusted R-squared:  0.2246
## F-statistic: 7.372 on 1 and 21 DF,  p-value: 0.01297
```

Eliminating Voice Behavior

```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data_except_voice_behavior)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.05262 -0.44615  0.03993  0.46061  0.63838
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    2.6177     0.7321   3.576 0.001784 **
## coordination    0.8212     0.2090   3.928 0.000771 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5264 on 21 degrees of freedom
## Multiple R-squared:  0.4236, Adjusted R-squared:  0.3961
## F-statistic: 15.43 on 1 and 21 DF,  p-value: 0.0007709
```


Outcome

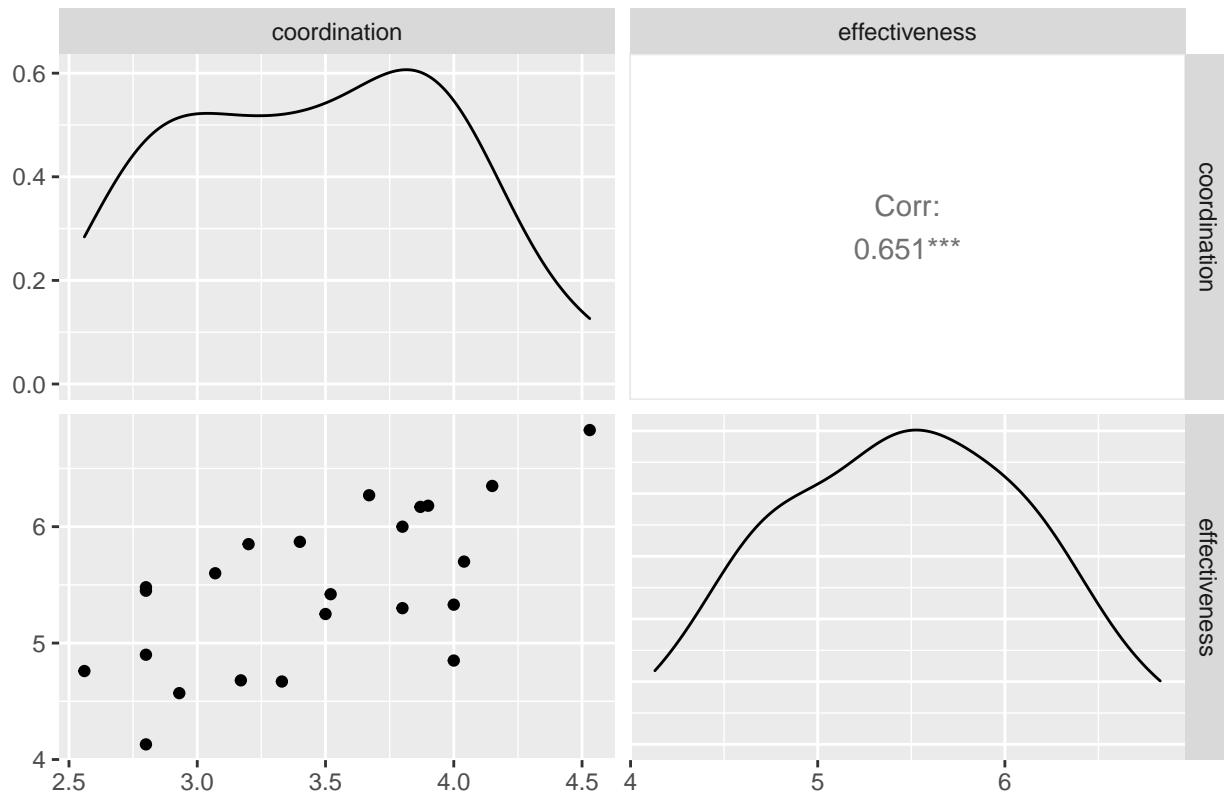
Eliminating Voice Behavior has less detrimental effect on Adjusted R-Squared, so it is eliminated.

$$\widehat{\text{effectiveness}} = 2.62 + 0.82(\text{coordination}) \quad (7)$$

Stage 6: Voice Behavior is Eliminated

At this point, the model only includes one independent variable which is Coordination.

Pairwise Correlation Matrix



```
##
## Call:
## lm(formula = effectiveness ~ ., data = core_data)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -1.05262 -0.44615  0.03993  0.46061  0.63838
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)   2.6177     0.7321   3.576 0.001784 **
## coordination   0.8212     0.2090   3.928 0.000771 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.5264 on 21 degrees of freedom
## Multiple R-squared:  0.4236, Adjusted R-squared:  0.3961
## F-statistic: 15.43 on 1 and 21 DF,  p-value: 0.0007709
```

Results

The table of independant variables in order of their predictive power (highest to lowest) is as follows:

Rank	Variable
1	Coordination
2	Voice Behavior
3	History
4	Tenure
5	Team Size
6	Age
7	Overconfidence

The optimal model (model with highest adjusted R-Squared) is as follows:

$$\widehat{\text{effectiveness}} = -0.5 - 0.07(\text{tenure}) + 0.02(\text{history}) + 0.82(\text{voice_behavior}) + 0.79(\text{coordination}) \quad (8)$$

Conclusion

Appendix A: Aggregated Data From Teams That Participated

##	team	org	team_size	response_rate	response_count	age	tenure
## 1	VxWVZXy	qX0d3XD	3	0.67	2	26.00	7.00
## 2	Olva1P1	ml4MwXj	4	0.75	3	25.33	6.00
## 3	5x0nMXW	oXoqeP0	3	1.00	3	24.00	4.00
## 4	JlBq3PN	Kl3zeP6	4	0.75	3	25.00	2.00
## 5	rX1wnPb	ylrepPL	6	0.83	5	29.20	4.00
## 6	5x0nqXW	2PJKk10	3	0.67	2	29.50	9.50
## 7	KPjex7	VxWvAXy	4	0.75	3	24.33	3.00
## 8	WXz0pPm	0xAoG1Q	4	0.75	3	28.67	4.67
## 9	zP7KKP8	5x02qXW	6	0.67	4	24.00	3.75
## 10	5P88oP9	5x02qXW	7	0.86	6	26.50	6.42
## 11	4xdmYPE	5P8oox9	3	1.00	3	29.67	8.33
## 12	YXmyDXN	k7lkqxD	3	0.67	2	25.00	3.00
## 13	DPpkGx8	k7lkqxD	4	0.75	3	23.00	1.67
## 14	8xNAJXm	yEXnYlg	5	1.00	5	23.80	5.00
## 15	ml4MwXj	GVX26X9	5	0.80	4	22.75	4.00
## 16	gxwyalv	M8xNJxm	3	1.00	3	28.67	4.00
## 17	ylrepPL	M8xNJxm	3	0.67	2	30.00	4.50
## 18	2PJKk10	M8xNJxm	3	1.00	3	23.00	0.33
## 19	VxWvAXy	M8xNJxm	6	0.83	5	30.20	7.20
## 20	0xAoG1Q	3B16N1b	3	0.67	2	27.00	4.50
## 21	rX1dn1b	3B16N1b	5	0.80	4	26.25	5.75
## 22	5x02qXW	3B16N1b	6	0.50	3	24.67	3.33
## 23	JlBJY1N	3B16N1b	6	1.00	6	35.33	6.25
##	overconfidence	history	voice_behavior	coordination	effectiveness		
## 1	4.00	6.50	3.92	3.80	5.30		
## 2	4.00	12.67	4.72	4.53	6.83		
## 3	5.67	20.33	3.45	3.33	4.67		
## 4	7.33	14.00	3.28	3.40	5.87		
## 5	3.20	11.60	3.77	2.56	4.76		
## 6	6.50	6.00	4.08	4.00	4.85		
## 7	6.67	8.33	4.55	2.80	4.90		
## 8	4.33	11.67	3.61	2.93	4.57		
## 9	3.25	4.25	4.17	4.15	6.35		
## 10	5.83	19.67	4.28	3.20	5.85		
## 11	3.33	5.00	4.33	3.67	6.27		
## 12	6.00	14.00	4.17	3.80	6.00		
## 13	4.67	5.67	3.78	4.00	5.33		
## 14	4.00	32.40	3.57	4.04	5.70		
## 15	6.00	29.50	3.62	2.80	5.48		
## 16	6.33	11.00	4.33	3.07	5.60		
## 17	5.00	19.00	3.83	3.50	5.25		
## 18	4.33	3.00	4.39	3.87	6.17		
## 19	4.60	13.40	4.07	3.52	5.42		
## 20	5.50	12.00	4.92	2.80	5.45		
## 21	5.00	38.00	3.88	3.90	6.18		
## 22	3.33	21.33	3.33	2.80	4.13		
## 23	5.67	34.83	3.50	3.17	4.68		

Appendix B: Data From Actual Survey Responses

##	id	team	gender	tenure	team_history	age	overconfidence	voice	eff_q1
## 1	KPjex7	VxWVZXy	male	4.0	2	23	4	3.83	6
## 2	8XM1vXy	VxWVZXy	male	10.0	11	29	4	4.00	5
## 3	WXzONPm	OlVA1P1	male	6.0	13	27	3	4.50	7
## 4	GxD15PN	OlVA1P1	female	4.0	12	24	2	4.67	7
## 5	YxeoL19	OlVA1P1	female	8.0	13	25	7	5.00	7
## 6	zP7KKP8	JlBq3PN	female	1.0	12	23	6	3.33	7
## 7	5P88MP9	5xOnMXW	male	4.0	12	23	5	3.67	6
## 8	RXKYnPe	5xOnMXW	male	3.0	23	22	6	2.67	6
## 9	0xAJGPQ	JlBq3PN	female	3.0	20	27	8	3.67	6
## 10	5xOnqXW	JlBq3PN	female	2.0	10	25	8	2.83	6
## 11	JlBqYPN	5xOnMXW	male	5.0	26	27	6	4.00	6
## 12	8XM1qXy	ml4MwXj	male	1.0	36	18	5	4.67	6
## 13	WXzOpPm	ml4MwXj	male	4.0	48	24	6	2.83	5
## 14	Yxeo019	0xAoGlQ	female	7.0	4	30	4	5.00	6
## 15	zP7KKP8	5x02qXW	female	7.0	42	30	3	4.83	7
## 16	5P88oP9	JlBJY1N	female	7.0	42	25	4	5.00	7
## 17	RXKY8Pe	DPpkGx8	female	1.0	5	22	4	3.67	6
## 18	BXqe5Xb	rX1wnPb	male	6.0	11	30	3	3.17	6
## 19	EXnKYxg	rX1wnPb	female	4.0	10	30	3	4.00	7
## 20	NP97vXA	YXmyDXN	male	1.0	8	21	6	3.67	7
## 21	GlgNzPg	YXmyDXN	male	5.0	20	29	6	4.67	6
## 22	oPGYjXz	DPpkGx8	male	3.0	2	22	4	4.17	6
## 23	VX2m619	8xNAJXm	female	5.0	24	24	3	3.33	7
## 24	JPRoK1y	8xNAJXm	male	6.0	60	23	6	4.33	7
## 25	YXmyDXN	8xNAJXm	male	2.0	6	25	2	2.17	6
## 26	DPpkGx8	8xNAJXm	male	7.0	36	24	4	4.17	6
## 27	2Py0wXW	8xNAJXm	male	5.0	36	23	5	3.83	6
## 28	mPZ9Yxv	5xOnqXW	male	16.0	2	36	6	4.00	6
## 29	8xNAJXm	KPjex7	male	5.0	9	22	6	5.00	3
## 30	WlQnRX0	5xOnqXW	male	3.0	10	23	7	4.17	5
## 31	B16eNPb	rX1wnPb	male	1.0	11	31	3	3.83	6
## 32	qX0d3XD	gxwyalv	male	5.0	23	32	7	4.33	7
## 33	ml4MwXj	gxwyalv	male	5.0	3	30	4	4.50	6
## 34	71EA91Q	rX1wnPb	female	4.0	2	30	3	3.83	5
## 35	oXoqeP0	VxWvAXy	male	15.0	40	37	3	4.50	6
## 36	jXVAW1e	zP7KKP8	male	3.0	5	22	4	4.33	7
## 37	8PYv81L	zP7KKP8	male	9.0	5	32	1	3.83	6
## 38	ePbaqxJ	5P88oP9	male	10.0	34	29	7	4.33	7
## 39	rlLNAx2	5P88oP9	male	6.0	21	30	5	4.00	6
## 40	gxwyalv	5P88oP9	male	4.0	4	24	5	4.33	6
## 41	ylrepPL	5P88oP9	male	10.0	22	30	5	4.33	6
## 42	2PJkkl0	5P88oP9	female	1.5	4	22	6	3.67	7
## 43	RX5ybX0	zP7KKP8	male	2.0	4	21	3	4.67	7
## 44	VxWvAXy	zP7KKP8	female	1.0	3	21	5	3.83	7
## 45	OlV9DP1	KPjex7	female	1.0	9	23	6	4.33	7
## 46	0xAoGlQ	KPjex7	female	3.0	7	28	8	4.33	7
## 47	rX1dn1b	5P88oP9	male	7.0	33	24	7	5.00	7
## 48	5x02qXW	rX1dn1b	male	3.0	16	25	5	3.67	6
## 49	JlBJY1N	WXzOpPm	male	2.0	12	26	1	2.83	7
## 50	KPjEgx7	VxWvAXy	female	3.0	1	25	4	4.00	7
## 51	WXzqplm	5x02qXW	female	2.0	18	24	3	3.00	5

## 52	GxDEwPN	WXzOpPm	male	5.0		3	32		8	4.33	5
## 53	Yxe40X9	WXzOpPm	male	7.0		20	28		4	3.67	5
## 54	k7lkqx	D J1BJY1N	female	1.5		17	24		3	2.17	6
## 55	5GlgzPg	4xdmYPE	male	7.0		5	29		3	3.83	7
## 56	roPGjxz	4xdmYPE	male	6.0		5	26		5	4.33	6
## 57	GVX26X9	4xdmYPE	female	12.0		5	34		2	4.83	7
## 58	D4xdYPE	J1BJY1N	male	6.0		6	66	10	2.83		1
## 59	wJPRKly	gxwyalv	female	2.0		7	24		8	4.17	7
## 60	VYXmd1N	DPpkGx8	female	1.0		10	25		6	3.50	6
## 61	M8xNJxm	ml4MwXj	male	1.0		10	19		6	3.50	5
## 62	3B16N1b	ml4MwXj	male	10.0		24	30		7	3.50	6
## 63	zml4wPj	rX1wnPb	male	5.0		24	25		4	4.00	6
## 64	N71E91Q	ylrepPL	female	3.0		36	33		7	3.67	6
## 65	1oXoeP0	VxWvAXy	female	2.0		5	22		7	4.00	6
## 66	aK13ex6	VxWvAXy	male	8.0		6	36		4	3.67	6
## 67	eYXaMXq	J1BJY1N	female	14.0		52	36		5	4.00	6
## 68	yjXVWxe	ylrepPL	male	6.0		2	27		3	4.00	6
## 69	E8PY8xL	2PJkkl0	female	0.0		4	22		3	4.33	7
## 70	1ePbqxJ	2PJkkl0	female	0.0		4	24		3	4.67	7
## 71	GylrpxL	2PJkkl0	male	1.0		1	23		7	4.17	7
## 72	7RX5bx0	VxWvAXy	male	8.0		15	31		5	4.17	6
## 73	oVxWAly	5x02qXW	male	1.0		4	20		4	2.17	5
## 74	e0lvDx1	0xAoG1Q	female	2.0		20	24		7	4.83	7
## 75	y0xAG1Q	rX1dn1b	female	5.0		28	27		3	4.00	6
## 76	ZrX1nxb	rX1dn1b	male	8.0		24	26		8	3.83	7
## 77	K5x0qlW	J1BJY1N	female	7.0		84	36		6	3.33	6
## 78	mJ1BYPN	rX1dn1b	male	7.0		84	27		4	4.00	6
## 79	mKPjgl7	J1BJY1N	female	2.0		8	25		6	3.67	7
##	eff_q2	eff_q3	eff_q4	eff_q5	eff_q6	eff_q7	eff_q8	eff_q9	eff_q10	coord_q1	
## 1	7	6	6	6	6	6	6	6	4	5	
## 2	3	5	6	3	5	6	6	5	3	5	
## 3	7	7	7	7	7	7	7	7	7	5	
## 4	2	7	7	7	7	7	7	7	7	5	
## 5	7	7	7	7	7	7	7	7	7	5	
## 6	5	7	7	7	6	7	6	6	6	4	
## 7	5	3	4	4	2	3	2	2	5	4	
## 8	5	4	7	2	5	5	6	6	4	3	
## 9	6	7	7	7	4	6	6	4	6	4	
## 10	6	6	7	6	5	4	5	4	4	3	
## 11	6	5	7	4	5	5	6	5	5	4	
## 12	5	7	7	6	6	3	6	3	4	2	
## 13	6	7	7	7	4	6	4	6	4	1	
## 14	6	6	6	5	4	5	5	3	5	3	
## 15	6	6	7	5	4	3	5	2	4	3	
## 16	7	6	7	5	4	3	5	1	4	3	
## 17	4	6	7	6	6	5	6	6	5	4	
## 18	1	6	7	5	5	6	6	4	4	4	
## 19	1	6	7	3	7	5	7	4	6	5	
## 20	3	6	7	5	6	5	6	5	6	4	
## 21	7	7	7	7	6	7	6	5	6	4	
## 22	6	5	6	4	5	5	4	5	6	5	
## 23	7	7	7	5	6	7	7	6	7	5	
## 24	6	7	7	4	3	5	5	6	7	5	
## 25	5	6	6	1	6	5	6	5	7	4	

## 26	5	6	5	4	5	6	5	7	6	4
## 27	5	5	5	4	4	6	5	7	7	4
## 28	3	5	6	4	6	5	6	4	6	4
## 29	6	6	7	5	4	3	5	2	3	4
## 30	1	5	7	3	6	6	6	4	3	4
## 31	6	3	7	2	2	5	5	2	4	2
## 32	1	5	7	4	7	6	7	4	6	4
## 33	2	7	7	7	4	6	7	4	6	4
## 34	5	6	7	5	6	5	5	5	5	4
## 35	6	3	6	6	5	6	2	3	5	4
## 36	5	7	7	6	6	7	7	7	6	4
## 37	6	7	7	6	7	7	7	7	6	4
## 38	4	7	7	6	6	6	5	6	6	5
## 39	2	7	6	6	6	6	7	4	6	4
## 40	6	7	7	6	6	6	6	5	5	4
## 41	4	7	7	7	5	6	5	4	6	4
## 42	6	7	7	6	5	6	4	6	5	3
## 43	6	7	7	6	7	7	7	7	7	4
## 44	2	7	7	6	7	6	6	1	6	4
## 45	5	7	7	5	6	1	7	1	6	4
## 46	6	6	7	4	5	4	5	3	4	4
## 47	7	7	7	5	5	4	6	5	6	5
## 48	7	6	7	6	5	6	6	6	6	5
## 49	7	1	6	1	6	5	1	5	1	4
## 50	6	7	7	6	6	4	6	4	6	4
## 51	3	5	6	2	3	4	5	1	3	2
## 52	5	6	7	4	5	4	6	5	4	3
## 53	5	6	6	3	4	5	4	3	5	4
## 54	6	6	7	4	5	3	5	3	3	3
## 55	7	7	7	6	6	6	5	7	6	4
## 56	3	7	6	5	6	6	6	6	5	5
## 57	7	7	7	7	7	7	7	6	6	5
## 58	1	1	1	1	1	1	1	7	1	1
## 59	2	7	7	7	7	5	7	4	5	2
## 60	3	6	7	5	6	5	6	3	4	4
## 61	4	7	7	6	4	4	6	3	4	2
## 62	7	7	7	5	6	5	6	4	7	4
## 63	2	1	7	1	1	4	4	7	6	1
## 64	6	6	7	4	5	6	6	4	5	4
## 65	5	6	6	6	5	6	5	5	6	3
## 66	5	5	7	2	5	6	6	2	6	4
## 67	6	6	7	6	7	7	6	6	5	5
## 68	5	5	7	2	5	5	5	4	6	4
## 69	6	6	7	6	7	7	7	7	7	4
## 70	7	7	7	7	1	6	6	6	6	4
## 71	6	6	7	5	6	5	6	4	6	5
## 72	5	7	7	5	5	6	5	6	6	5
## 73	3	2	7	1	5	4	5	3	3	3
## 74	4	7	7	6	7	4	7	3	6	4
## 75	6	7	7	6	6	6	6	6	7	4
## 76	7	7	7	7	7	7	6	5	7	5
## 77	5	4	7	5	5	5	6	5	4	3
## 78	6	6	6	5	6	5	4	5	7	4
## 79	5	6	7	5	5	5	6	5	3	4

##	coord_q2	coord_q3	coord_q4	coord_q5	voice_q1	voice_q2	voice_q3	voice_q4
## 1	2	3	4	4	4	4	4	4
## 2	4	4	4	3	5	4	4	3
## 3	4	5	5	4	5	4	5	4
## 4	4	4	5	4	4	5	5	5
## 5	4	5	5	4	5	5	5	5
## 6	1	2	4	4	2	4	5	3
## 7	4	2	5	4	3	4	4	5
## 8	2	2	4	2	3	2	1	4
## 9	2	4	4	3	4	4	3	3
## 10	4	4	4	4	4	2	4	3
## 11	4	4	3	3	4	4	4	4
## 12	3	1	4	2	5	5	5	4
## 13	3	5	2	3	2	4	4	3
## 14	2	3	3	2	5	5	5	5
## 15	4	2	3	2	5	4	5	5
## 16	2	2	3	2	5	5	5	5
## 17	4	4	4	3	3	4	4	4
## 18	3	3	4	2	3	3	3	4
## 19	3	3	4	2	4	4	4	4
## 20	3	4	3	3	4	4	3	3
## 21	4	5	4	4	5	5	4	4
## 22	4	3	4	4	4	4	4	4
## 23	3	4	5	5	3	3	4	4
## 24	3	5	5	4	5	5	5	4
## 25	3	5	4	2	2	2	2	2
## 26	4	5	4	3	5	5	4	3
## 27	3	4	4	4	3	4	5	4
## 28	4	4	4	4	4	4	4	4
## 29	3	4	2	3	5	5	5	5
## 30	4	4	4	4	5	3	5	3
## 31	2	2	2	2	4	4	4	4
## 32	3	2	4	2	4	5	4	4
## 33	2	3	4	5	5	5	3	4
## 34	3	2	3	3	4	4	4	3
## 35	4	4	3	3	5	5	5	4
## 36	4	4	4	3	4	5	4	4
## 37	4	4	4	4	4	4	3	4
## 38	2	4	4	3	5	4	5	4
## 39	4	3	4	4	3	5	4	4
## 40	3	4	4	3	4	4	4	4
## 41	2	2	3	2	4	4	5	4
## 42	2	2	4	3	3	4	4	4
## 43	5	5	5	4	5	5	5	4
## 44	4	5	4	4	4	4	4	4
## 45	2	2	3	1	4	4	4	4
## 46	2	2	3	3	4	5	4	4
## 47	2	1	4	2	5	5	5	5
## 48	5	5	3	4	4	3	4	4
## 49	1	4	3	1	4	2	2	3
## 50	4	4	4	4	4	4	4	4
## 51	3	4	2	2	2	4	4	3
## 52	2	2	4	2	4	5	5	4
## 53	3	4	3	4	4	4	3	4

## 54	3	2	2	4	2	2	2	3
## 55	5	2	5	4	4	4	4	4
## 56	3	2	4	2	4	5	5	5
## 57	4	2	4	4	5	5	5	4
## 58	1	5	2	5	5	3	3	1
## 59	4	2	4	1	5	5	4	4
## 60	4	5	4	4	4	4	3	3
## 61	2	3	3	5	4	3	4	3
## 62	1	1	5	4	5	3	3	3
## 63	1	1	2	1	5	4	3	4
## 64	4	4	4	3	3	4	5	4
## 65	3	4	3	4	3	5	4	4
## 66	2	4	2	4	4	3	4	4
## 67	5	2	5	4	4	4	4	4
## 68	3	2	4	3	4	4	4	4
## 69	2	3	4	4	4	5	4	4
## 70	4	3	4	4	5	4	5	5
## 71	5	3	4	5	4	4	5	4
## 72	4	2	4	2	5	5	4	3
## 73	2	4	3	3	3	2	1	3
## 74	2	3	4	2	5	5	5	4
## 75	4	4	4	4	4	4	4	4
## 76	4	1	4	4	4	4	4	3
## 77	4	3	4	3	3	3	4	3
## 78	4	3	4	3	4	4	4	4
## 79	3	4	3	3	4	4	4	3
##	voice_q5	voice_q6	ovconf_q1h	ovconf_q1l	ovconf_q2h	ovconf_q2l	ovconf_q3h	
## 1	3	4	33	25	2008	2005	10	
## 2	4	4	30	20	2000	1992	50	
## 3	5	4	33	27	2000	1990	50	
## 4	5	4	35	30	2009	2007	45	
## 5	5	5	31	30	1995	1990	30	
## 6	4	2	40	32	2010	2009	45	
## 7	2	4	60	45	2010	2000	50	
## 8	4	2	35	32	2000	1950	30	
## 9	4	4	25	20	1970	1950	25	
## 10	2	2	35	33	2010	2005	68	
## 11	4	4	36	31	2005	2002	35	
## 12	4	5	32	31	2005	1990	10	
## 13	2	2	40	36	2010	2007	60	
## 14	5	5	40	20	2000	1990	20	
## 15	5	5	40	20	2005	1990	20	
## 16	5	5	25	15	2005	1995	20	
## 17	3	4	35	30	2000	1980	50	
## 18	3	3	30	23	2008	2005	22	
## 19	4	4	34	24	2010	2002	30	
## 20	3	5	35	30	2012	2010	120	
## 21	5	5	31	30	2008	2007	60	
## 22	4	5	32	30	2010	2005	50	
## 23	3	3	35	28	2011	2010	100	
## 24	3	4	38	30	2005	1990	40	
## 25	4	1	33	28	2008	2006	50	
## 26	4	4	33	30	2005	2003	60	
## 27	3	4	33	30	2008	2006	40	

## 28	4	4	28	28	2008	2004	30
## 29	5	5	31	31	2007	2007	25
## 30	4	5	32	28	1970	1950	15
## 31	4	3	29	27	2008	2006	50
## 32	4	5	35	25	2005	2000	80
## 33	5	5	31	30	2006	2004	39
## 34	4	4	31	31	2010	2005	50
## 35	4	4	33	30	2008	2006	30
## 36	4	5	36	30	2000	1990	60
## 37	4	4	32	31	2008	2007	44
## 38	4	4	34	31	2000	1995	15
## 39	4	4	32	30	2008	2004	25
## 40	5	5	34	30	2007	2007	100
## 41	4	5	35	31	2005	2000	80
## 42	4	3	35	30	1390	1384	100
## 43	4	5	34	31	2010	1998	45
## 44	3	4	35	30	2010	2005	30
## 45	5	5	33	30	2002	2000	20
## 46	5	4	37	32	2004	2002	10
## 47	5	5	34	28	2005	2002	24
## 48	3	4	32	31	2008	2007	30
## 49	4	2	40	30	2010	2000	60
## 50	4	4	35	30	2002	2000	150
## 51	2	3	35	30	2011	2007	40
## 52	3	5	30	28	2010	2005	14
## 53	4	3	33	28	2006	2002	21
## 54	2	2	32	30	2012	2010	50
## 55	3	4	31	30	2011	2009	50
## 56	3	4	33	30	2007	2007	70
## 57	5	5	33	29	2010	2005	60
## 58	3	2	9	9	8	8	9
## 59	3	4	33	32	2000	1990	60
## 60	4	3	35	32	2010	2000	15
## 61	3	4	33	32	2005	2000	12
## 62	4	3	40	35	2009	2006	30
## 63	3	5	32	28	2008	2005	35
## 64	3	3	40	30	2000	1990	25
## 65	4	4	100	50	1998	1994	10
## 66	4	3	50	40	2012	2005	60
## 67	4	4	32	31	2005	2000	15
## 68	4	4	37	29	2008	2004	50
## 69	5	4	34	30	2009	2005	50
## 70	5	4	40	30	2015	2000	40
## 71	5	3	34	30	2005	1995	180
## 72	3	5	32	31	2002	2000	25
## 73	2	2	32	30	2009	2005	120
## 74	5	5	30	23	2005	2000	25
## 75	4	4	31	30	2007	2006	8
## 76	4	4	33	32	1980	1960	6
## 77	4	3	33	33	2008	2007	27
## 78	4	4	33	30	2004	2000	110
## 79	3	4	35	31	2005	1998	100
##	ovconf_q3l	ovconf_q4h	ovconf_q4l	ovconf_q5h	ovconf_q5l	ovconf_q6h	ovconf_q6l
## 1	5	2003	2000	30	20	2000	1960

## 2	20	2019	2000	10	3	2000	1993
## 3	10	2000	1990	100	10	2000	1980
## 4	20	2005	2000	50	20	1990	1980
## 5	20	2000	1990	20	10	1970	1960
## 6	35	2005	2000	56	44	2000	1996
## 7	40	2000	1995	45	35	1970	1960
## 8	15	2000	1950	5	2	2000	1950
## 9	20	1890	1870	53	47	1900	1890
## 10	56	2005	2002	35	25	2000	1994
## 11	20	2003	2000	30	20	1985	1970
## 12	5	2000	1980	10	5	1990	1980
## 13	30	2002	2000	30	20	1970	1940
## 14	10	2000	1995	20	10	2000	1980
## 15	10	2005	1995	40	20	1990	1970
## 16	10	2000	1996	40	20	1990	1970
## 17	30	2010	1990	35	25	2000	1980
## 18	12	2003	2000	28	20	1990	1980
## 19	20	2010	2000	30	20	1990	1980
## 20	50	2000	1997	15	10	1990	1950
## 21	50	2002	2000	3	2	2000	1990
## 22	30	2005	2000	13	10	2000	1995
## 23	20	2000	1900	100	40	2000	1990
## 24	20	2005	2000	4	2	2000	1980
## 25	30	2004	2000	6	2	1996	1980
## 26	40	2001	1999	2	2	2000	1998
## 27	20	2005	2001	3	2	2000	1998
## 28	20	2001	2001	5	3	1980	1950
## 29	20	2010	2005	5	2	1960	1950
## 30	10	1980	1970	5	1	1920	1910
## 31	30	2003	2000	20	10	1995	1990
## 32	50	2003	2001	130	60	1930	1850
## 33	10	2000	1996	4	2	1990	1970
## 34	45	2001	2000	25	15	2000	1990
## 35	25	2002	2000	25	20	1990	1985
## 36	40	2005	2000	7	3	1990	1980
## 37	44	2001	2000	23	20	1992	1991
## 38	10	1995	1985	5	3	1990	1950
## 39	15	2004	1998	20	10	1970	1950
## 40	80	2004	2002	4	2	1995	1990
## 41	50	2005	2000	30	20	1960	1930
## 42	40	1385	1378	5	2	1385	1378
## 43	35	2005	1990	7	3	2005	1985
## 44	20	2010	2000	15	10	2000	1980
## 45	10	2012	2008	15	10	1998	1980
## 46	5	2002	2000	250	150	19900	1970
## 47	17	2002	2000	4	2	1980	1960
## 48	20	2004	2002	7	4	1995	1985
## 49	10	2002	1990	40	10	1980	1940
## 50	100	2000	1995	30	20	1950	1950
## 51	30	2003	1998	10	4	2000	1990
## 52	10	2000	1990	15	8	1980	1950
## 53	15	2000	1995	3	2	1990	1980
## 54	30	2005	2000	50	40	2000	1990
## 55	40	2002	2000	23	20	1990	1989

## 56	50	2003	2002	7	5	1986	1985
## 57	40	2010	2005	30	20	1995	1985
## 58	9	9	9	9	9	9	8
## 59	50	2000	1990	60	50	2000	1980
## 60	10	2010	2000	8	5	2000	1990
## 61	9	2002	1996	3	2	1990	1987
## 62	20	2003	2000	3	2	2000	1995
## 63	25	2000	1999	5	4	1996	1990
## 64	15	1389	1385	12	8	1978	1975
## 65	5	2000	1985	4	2	2001	1990
## 66	40	2000	1990	12	8	2000	1990
## 67	7	2005	1997	3	2	1987	1980
## 68	30	2002	1998	12	3	1990	1960
## 69	40	2005	1990	2	2	2000	1990
## 70	25	2008	2000	4	3	2005	1990
## 71	100	1999	1995	18	10	1980	1890
## 72	22	2003	2001	10	5	1995	1990
## 73	90	2005	2002	25	10	1990	1970
## 74	20	2000	1998	50	40	2000	1995
## 75	5	2000	1995	30	20	2000	1991
## 76	5	2000	1996	2	2	1960	1950
## 77	26	2011	2002	23	10	1991	1989
## 78	60	2000	1996	15	5	1996	1990
## 79	50	2005	1998	4	2	2005	2000
##	ovconf_q7h	ovconf_q7l	ovconf_q8h	ovconf_q8l	ovconf_q9h	ovconf_q9l	
## 1	2005	1990	33	20	700	600	
## 2	2000	1993	35	29	1000	700	
## 3	2005	1990	33	28	1500	1000	
## 4	2008	2000	32	28	1200	800	
## 5	1980	1960	32	30	800	600	
## 6	2000	1990	33	23	3000	2000	
## 7	2000	1990	35	25	1400	1000	
## 8	2000	1950	34	30	1200	900	
## 9	1990	1980	32	28	990	870	
## 10	1999	1996	33	30	4000	3000	
## 11	1985	1970	36	30	1300	1000	
## 12	1995	1980	36	32	1000	900	
## 13	1990	1970	34	34	800	700	
## 14	2000	1990	34	30	1000	800	
## 15	2005	1990	34	30	1000	800	
## 16	2000	1990	34	30	1000	800	
## 17	2000	1980	32	28	1200	1000	
## 18	1995	1990	32	20	1000	800	
## 19	1985	1980	34	28	900	700	
## 20	1990	1960	33	30	1200	700	
## 21	1998	1995	32	28	1600	1400	
## 22	2005	2000	34	32	1100	1000	
## 23	2000	1980	35	25	1500	720	
## 24	1999	1997	30	26	1200	800	
## 25	1996	1980	32	28	10000	800	
## 26	2000	1990	35	30	1100	1000	
## 27	2000	1995	35	30	1200	900	
## 28	1998	1998	32	32	950	900	
## 29	1990	1980	32	28	700	650	

## 30	1990	1980	32	1	1200	900
## 31	1997	1990	34	32	1200	900
## 32	1965	1950	34	30	1000	600
## 33	2030	1971	34	27	1000	900
## 34	1990	1985	33	30	1200	800
## 35	1995	1990	32	28	1000	800
## 36	1995	1985	34	30	1200	800
## 37	1994	1993	32	32	1000	500
## 38	2000	1990	38	34	2200	1900
## 39	1980	1970	32	28	1200	1100
## 40	1998	1995	32	28	1000	800
## 41	1990	1980	32	30	1000	900
## 42	1385	1378	32	26	250	120
## 43	2000	1985	34	30	1100	900
## 44	2010	2000	32	32	1800	1500
## 45	1998	1980	35	30	1000	80
## 46	2000	1995	32	30	25000	20000
## 47	1985	1980	38	34	650	400
## 48	2000	1998	32	28	1000	800
## 49	2000	1990	35	30	13000	900
## 50	1950	1950	32	32	1000	900
## 51	2000	1990	32	28	1200	900
## 52	1990	1970	24	20	500	100
## 53	2001	1987	34	30	900	700
## 54	2000	1990	32	32	900	800
## 55	1993	1992	32	30	1000	998
## 56	1999	1996	32	28	1000	900
## 57	1995	1990	32	28	950	900
## 58	9	9	9	9	9	9
## 59	1900	1880	32	32	1000	999
## 60	1985	1980	32	30	900	800
## 61	1996	1984	33	32	650	400
## 62	2002	1995	30	15	600	400
## 63	1998	1990	32	32	1000	900
## 64	1967	1960	32	31	1000	700
## 65	2000	1950	35	30	30000	5000
## 66	2000	1990	36	36	1200	700
## 67	1995	1988	34	32	1000	900
## 68	1985	1970	32	32	1200	800
## 69	1996	1980	32	30	1100	950
## 70	2010	1990	32	28	1000	900
## 71	1998	1960	33	27	1100	950
## 72	1995	1990	32	32	1000	900
## 73	1990	1975	32	28	950	890
## 74	1990	1980	32	32	1000	999
## 75	1970	1960	32	29	920	850
## 76	1960	1960	36	32	750	700
## 77	1963	1960	32	28	900	890
## 78	1996	1990	32	30	990	900
## 79	2003	1990	32	28	1800	1200
##	ovconf_q10h	ovconf_q10l				
## 1	15	8				
## 2	50	40				
## 3	70	40				

## 4	60	40
## 5	15	10
## 6	26	25
## 7	90	80
## 8	250	150
## 9	45	30
## 10	28	25
## 11	80	60
## 12	30	20
## 13	20	15
## 14	50	40
## 15	50	40
## 16	50	40
## 17	60	40
## 18	54	18
## 19	56	46
## 20	30	20
## 21	70	60
## 22	50	40
## 23	100	40
## 24	70	50
## 25	75	45
## 26	60	50
## 27	55	45
## 28	60	50
## 29	50	40
## 30	80	70
## 31	60	50
## 32	45	30
## 33	50	40
## 34	55	50
## 35	45	40
## 36	110	70
## 37	60	50
## 38	65	45
## 39	70	50
## 40	60	50
## 41	100	70
## 42	80	50
## 43	95	80
## 44	50	40
## 45	120	80
## 46	100	80
## 47	55	43
## 48	60	50
## 49	60	40
## 50	50	45
## 51	55	45
## 52	8	3
## 53	50	40
## 54	50	40
## 55	55	45
## 56	60	50
## 57	53	48

## 58	9	9
## 59	60	59
## 60	150	100
## 61	50	40
## 62	60	50
## 63	17	16
## 64	100	90
## 65	1400	89
## 66	60	50
## 67	62	59
## 68	75	50
## 69	60	50
## 70	100	40
## 71	130	70
## 72	50	40
## 73	80	50
## 74	60	50
## 75	52	45
## 76	40	30
## 77	55	52
## 78	55	40
## 79	85	75

Appendix C: R Version

```
##
## platform      x86_64-pc-linux-gnu
## arch          x86_64
## os            linux-gnu
## system        x86_64, linux-gnu
## status
## major         3
## minor         6.3
## year          2020
## month         02
## day           29
## svn rev       77875
## language      R
## version.string R version 3.6.3 (2020-02-29)
## nickname      Holding the Windsock
```


Appendix D: R Packages