

# Study 5

## 2x2 Pool (Women vs Men) × Feedback (Control vs Treatment)

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## Variable Names

Variable	Description
treatment	Binary indicator of whether a participant was randomly assigned to treatment condition (1 = treat, 0 = control).
men_pool	Binary indicator of pool condition where women are underrepresented (1 = men pool/25% women, 0 = women pool/75% women).
female_pick	Binary indicator of whether the 7th (final) selection is a woman (PRIMARY DV).
base_gender	Count of women selected in the initial 6 choices (0-6).
tech_pick	Binary indicator of whether the 7th selection is a technologist.
choice-1 to choice-7	The selected CEOs/Founders (choices 1-6 are initial, choice-7 is final DV)
gender	Self-selected gender.
race	Self-selected race.
age	Self-entered age.

## Demographics

```
## Excluded Participants: 63

## Total N: 396

## Percentage gender
## 1 Man 48.74
## 2 Non-binary 1.26
## 3 Woman 50.00

## Percentage Race
## 1 American Indian or Alaskan Native 0.76
## 2 Asian / Pacific Islander 6.82
## 3 Black or African American 12.63
## 4 Hispanic / Latinx 7.07
## 5 White / Caucasian 72.73

## # A tibble: 1 x 2
##   mean_age sd_age
##       <dbl>  <dbl>
## 1     41.7    13.1

##
##
## Cell Sizes by Condition:

## # A tibble: 4 x 3
##   pool cond      n
##   <chr> <chr> <int>
## 1 men  control    98
## 2 men  treat      99
## 3 women control    99
## 4 women treat     100

##
##
## Mean number of women in initial 6 selections: 2.44

## SD of women in initial 6 selections: 1.71

## # A tibble: 4 x 5
##   cond   pool   mean    sd      n
##   <chr> <chr> <dbl> <dbl> <int>
## 1 control men    1.28  1.18    98
## 2 control women  3.60  1.32    99
## 3 treat   men    1.27  1.30    99
## 4 treat   women  3.6   1.21   100

##
##
## Proportion who selected a woman for final choice: 0.543
```

```
## SD: 0.499

## # A tibble: 4 x 5
##   cond    pool   mean    sd     n
##   <chr>   <chr>  <dbl>  <dbl> <int>
## 1 control men    0.316 0.467    98
## 2 control women  0.667 0.474    99
## 3 treat   men    0.495 0.503    99
## 4 treat   women  0.69   0.465   100
```

## Primary Analysis: 2x2 Interaction

```
## === 2x2 Interaction: Treatment * Women Underrepresented Pool ===

## Model: female_pick ~ treatment * men_pool

## (men_pool: 1 = women underrepresented, 0 = women overrepresented)

##
## Call:
## lm(formula = female_pick ~ treatment * men_pool, data = d0)
##
## Residuals:
##      Min       1Q   Median       3Q      Max 
## -0.6900 -0.4950  0.3100  0.3333  0.6837 
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)    
## (Intercept) 0.66667   0.04786 13.929 < 2e-16 ***
## treatment    0.02333   0.06688  0.349   0.727    
## men_pool     -0.35034   0.06740 -5.198 3.25e-07 ***
## treatment:men_pool 0.15529   0.09645  1.610   0.108    
## ---      
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4774 on 392 degrees of freedom
## Multiple R-squared:  0.09096,    Adjusted R-squared:  0.08401 
## F-statistic: 13.08 on 3 and 392 DF,  p-value: 3.729e-08

##                  2.5 %     97.5 %
## (Intercept) 0.57256955  0.7607638
## treatment   -0.10815809  0.1548248
## men_pool    -0.48285759 -0.2178227
## treatment:men_pool -0.03433272  0.3449120

##
## 
## Cell Means:

## # A tibble: 4 x 5
##   cond   pool     n mean_female_pick     se
##   <chr> <chr> <int>            <dbl> <dbl>
## 1 control men     98        31.6  4.72
## 2 control women   99        66.7  4.76
## 3 treat   men     99        49.5  5.05
## 4 treat   women   100       69    4.65
```

## Simple Effects by Pool

### Women Underrepresented Pool (Men Pool, 25% Women)

```
## === WOMEN UNDERREPRESENTED POOL (MEN POOL, 25% WOMEN) ===

## Model: female_pick ~ treatment

##
## Call:
## lm(formula = female_pick ~ treatment, data = d0 %>% filter(men_pool ==
##     1))
##
## Residuals:
##      Min      1Q  Median      3Q      Max
## -0.4950 -0.4950 -0.3163  0.5050  0.6837
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  0.31633   0.04746   6.665 2.65e-10 ***
## treatment    0.17862   0.06949   2.570   0.0109 *
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4854 on 195 degrees of freedom
## Multiple R-squared:  0.03307, Adjusted R-squared:  0.02811
## F-statistic:  6.67 on 1 and 195 DF, p-value: 0.01054

##           2.5 %    97.5 %
## (Intercept) 0.22272449 0.4099286
## treatment    0.04156827 0.3156777

##
## Cell Means - Women Underrepresented Pool:

## # A tibble: 2 x 4
##   cond      n mean_female_pick     se
##   <chr>  <int>          <dbl>  <dbl>
## 1 control    98            31.6  4.72
## 2 treat      99            49.5  5.05
```

### Women Overrepresented Pool (Women Pool, 75% Women)

```
## === WOMEN OVERREPRESENTED POOL (WOMEN POOL, 75% WOMEN) ===

## --- MAIN EFFECT MODEL ---

## Model: female_pick ~ treatment

## 
## Call:
## lm(formula = female_pick ~ treatment, data = d0 %>% filter(men_pool ==
##      0))
## 
## Residuals:
##     Min      1Q  Median      3Q     Max 
## -0.6900 -0.6667  0.3100  0.3333  0.3333 
## 
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)    
## (Intercept) 0.66667   0.04786 13.929 <2e-16 ***
## treatment    0.02333   0.06688  0.349   0.728    
## ---      
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1 
## 
## Residual standard error: 0.4693 on 197 degrees of freedom
## Multiple R-squared:  0.0006238, Adjusted R-squared:  -0.004449 
## F-statistic: 0.123 on 1 and 197 DF,  p-value: 0.7262 

##                 2.5 %    97.5 %
## (Intercept) 0.5722802 0.7610531
## treatment   -0.1085624 0.1552290

## 
## 
## Cell Means by Treatment:

## # A tibble: 2 x 4
##   cond      n mean_female_pick     se
##   <chr>    <int>          <dbl>  <dbl>
## 1 control    99           66.7   4.76
## 2 treat     100           69     4.65

## 
## 
## --- MODERATION BY PARTICIPANT GENDER ---

## Gender distribution in Women Overrepresented Pool:

## # A tibble: 3 x 2
##   gender      n
##   <chr>    <int>
## 1 Man        92
## 2 Non-binary    4
## 3 Woman       103
```

```

## Analysis restricted to Woman and Man participants only

## N = 195

## Model: female_pick ~ treatment * gender

## 
## Call:
## lm(formula = female_pick ~ treatment * gender, data = d_women_pool_binary)
## 
## Residuals:
##      Min       1Q   Median       3Q      Max 
## -0.7719 -0.5610  0.2281  0.3922  0.4390 
## 
## Coefficients:
##                               Estimate Std. Error t value Pr(>|t|)    
## (Intercept)             0.60784   0.06973   8.717 1.37e-15 ***
## treatment              -0.04687   0.10571  -0.443   0.658    
## genderWoman             0.10955   0.09730   1.126   0.262    
## treatment:genderWoman  0.10141   0.13776   0.736   0.463    
## ---                        
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## Residual standard error: 0.4668 on 191 degrees of freedom
## Multiple R-squared:  0.03208,    Adjusted R-squared:  0.01688 
## F-statistic:  2.11 on 3 and 191 DF,  p-value: 0.1003

##                               2.5 %     97.5 %
## (Intercept)             0.47029668 0.7453896
## treatment              -0.25536824 0.1616332
## genderWoman             -0.08238181 0.3014781
## treatment:genderWoman -0.17032993 0.3731420

## 
## 
## Cell Means by Treatment × Participant Gender:

## # A tibble: 4 x 5
##   cond   gender     n mean_female_pick     se
##   <chr> <chr> <int>          <dbl> <dbl>
## 1 control Man      51        60.8  6.90
## 2 control Woman    46        71.7  6.71
## 3 treat   Man      41        56.1  7.85
## 4 treat   Woman    57        77.2  5.61

## 
## 
## --- SIMPLE SLOPES ---

## Treatment Effect for Women Participants:

```

```

## 
## Call:
## lm(formula = female_pick ~ treatment, data = d_women_pool_binary %>%
##     filter(gender == "Woman"))
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -0.7719 -0.2447  0.2281  0.2826  0.2826
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)    
## (Intercept) 0.71739   0.06786 10.571 <2e-16 ***
## treatment    0.05454   0.08835  0.617   0.538    
## ---      
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4378 on 101 degrees of freedom
## Multiple R-squared:  0.003896, Adjusted R-squared:  -0.005967 
## F-statistic: 0.395 on 1 and 101 DF, p-value: 0.5311

## Treatment coefficient:  0.0545

## 95% CI: [-0.1207, 0.2298]

## Treatment Effect for Men Participants:

## 
## Call:
## lm(formula = female_pick ~ treatment, data = d_women_pool_binary %>%
##     filter(gender == "Man"))
##
## Residuals:
##    Min     1Q Median     3Q    Max
## -0.6078 -0.5610  0.3922  0.4039  0.4390
##
## Coefficients:
##             Estimate Std. Error t value Pr(>|t|)    
## (Intercept) 0.60784   0.06973  8.717 1.34e-13 ***
## treatment   -0.04687   0.10571 -0.443   0.659    
## ---      
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4973 on 90 degrees of freedom
## Multiple R-squared:  0.002238, Adjusted R-squared:  -0.008848 
## F-statistic: 0.2019 on 1 and 90 DF, p-value: 0.6543

## Treatment coefficient: -0.0469

## 95% CI: [-0.2569, 0.1631]

## --- DIFFERENCE IN TREATMENT EFFECTS ---

## Treatment effect (Women participants): 0.0545 (SE = 0.0883)

```

```
## Treatment effect (Men participants): -0.0469 (SE = 0.1057)

## Difference: 0.1014

## SE of difference: 0.1378

## Z-statistic: 0.7361

## P-value: 0.4617

## CONCLUSION: Participant gender does NOT significantly moderate the treatment effect (p >= 0.05).
```

## Wald Test: Comparing Treatment Effects Across Pools

```
## === WALD TEST: DIFFERENCE IN TREATMENT EFFECTS BETWEEN POOLS ===

## Treatment Effect (Men Pool 25%): 0.1786 (SE = 0.0695)

## Treatment Effect (Women Pool 75%): 0.0233 (SE = 0.0669)

## Difference in Treatment Effects: 0.1553

## Standard Error of Difference: 0.0964

## Wald Statistic (z): 1.6101

## P-value (two-tailed): 0.1074

## 95% CI for Difference: [-0.0338, 0.3443]
```

## Visualization

Interaction Plot: Treatment × Pool

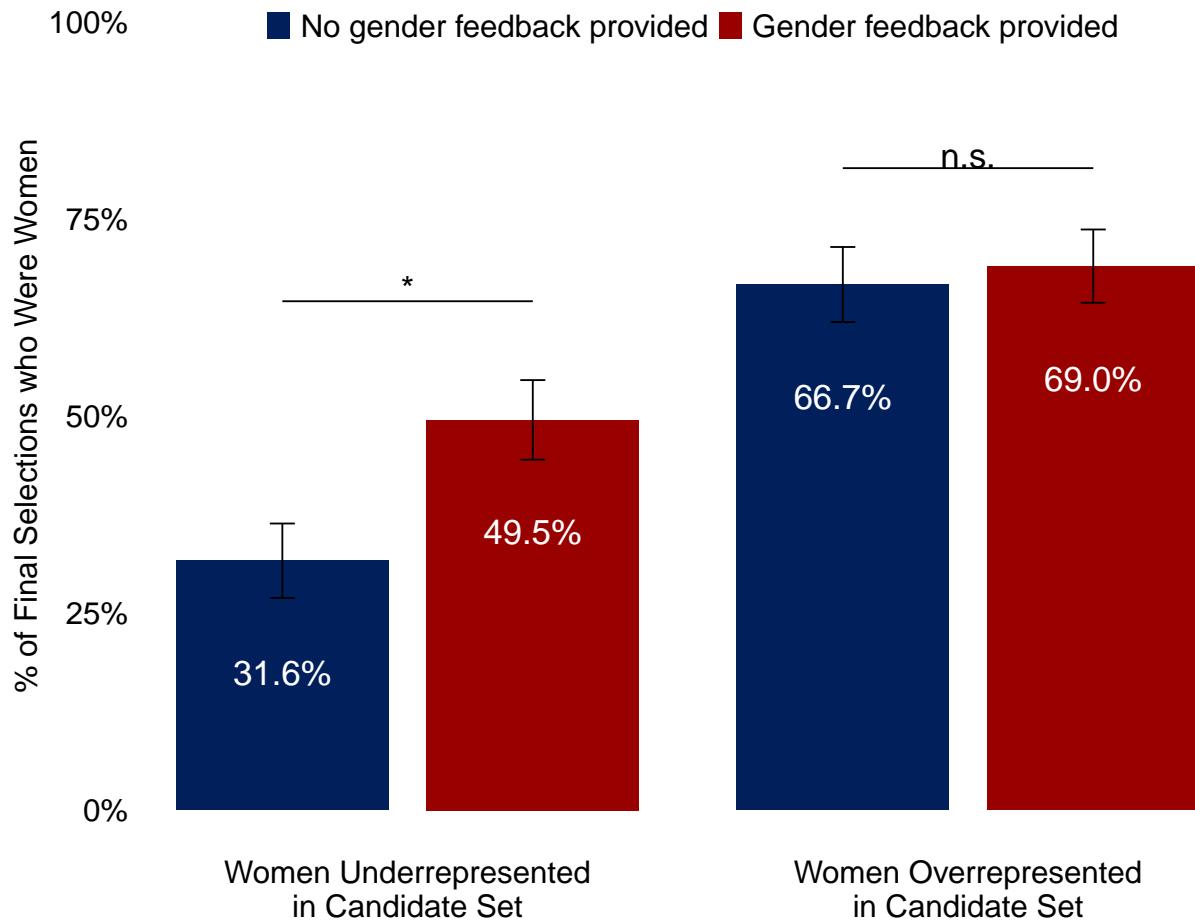


Figure 1: Effect of Gender Feedback by Pool Condition

## Robustness Checks

### Logistic Regression Analyses

```
## =====  
  
## ROBUSTNESS CHECK: LOGISTIC REGRESSION ANALYSES  
  
## =====  
  
## --- H1 TEST: MEN POOL (WOMEN UNDERREPRESENTED) ONLY ---  
  
##  
## Call:  
## glm(formula = female_pick ~ treatment, family = binomial(link = "logit"),  
##      data = d0 %>% filter(men_pool == 1))  
##  
## Coefficients:  
##             Estimate Std. Error z value Pr(>|z|)  
## (Intercept) -0.7707     0.2172  -3.548 0.000388 ***  
## treatment     0.7505     0.2960   2.536 0.011218 *  
## ---  
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1  
##  
## (Dispersion parameter for binomial family taken to be 1)  
##  
## Null deviance: 266.11  on 196  degrees of freedom  
## Residual deviance: 259.55  on 195  degrees of freedom  
## AIC: 263.55  
##  
## Number of Fisher Scoring iterations: 4  
  
##  
## Odds Ratios and 95% CIs:  
  
##          OR      2.5 %     97.5 %  
## (Intercept) 0.4626866 0.2984094 0.7015656  
## treatment    2.1180645 1.1914174 3.8100561  
  
## --- H1 & H2 TEST: FULL 2x2 INTERACTION ---  
  
##  
## Call:  
## glm(formula = female_pick ~ treatment * men_pool, family = binomial(link = "logit"),  
##      data = d0)  
##  
## Coefficients:  
##             Estimate Std. Error z value Pr(>|z|)  
## (Intercept)      0.6931     0.2132   3.251 0.00115 **  
## treatment       0.1070     0.3037   0.352 0.72463
```

```

## men_pool           -1.4639      0.3044   -4.810 1.51e-06 ***
## treatment:men_pool 0.6435      0.4240    1.518  0.12910
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
##
## Null deviance: 546.05  on 395  degrees of freedom
## Residual deviance: 509.40  on 392  degrees of freedom
## AIC: 517.4
##
## Number of Fisher Scoring iterations: 4

##
##
## Odds Ratios and 95% CIs:

##                               OR      2.5 %     97.5 %
## (Intercept)            2.0000000 1.3277073 3.0720650
## treatment              1.1129032 0.6134135 2.0231309
## men_pool               0.2313433 0.1259329 0.4161955
## treatment:men_pool   1.9031884 0.8301230 4.3839414

```

## Models with Demographic Controls

```
## =====  
  
## ROBUSTNESS CHECK: MODELS WITH DEMOGRAPHIC CONTROLS  
  
## =====  
  
## Demographic Variable Summary:  
  
## Man (1=Man, 0=Not-Man): 48.7%  
  
## White (1=White, 0=Non-White): 0.0%  
  
## Age (mean): 41.74  
  
## Missing Data:  
  
## Gender missing: 0  
  
## Race missing: 0  
  
## Age missing: 0  
  
## --- PRIMARY MODEL WITH DEMOGRAPHIC CONTROLS ---  
  
## Model: female_pick ~ treatment * men_pool + man + white + age + missing indicators  
  
##  
## Call:  
## lm(formula = female_pick ~ treatment * men_pool + man + white +  
##     age_clean + gender_missing + race_missing + age_missing,  
##     data = d0_controls)  
##  
## Residuals:  
##      Min    1Q   Median    3Q   Max  
## -0.8743 -0.4518  0.2026  0.3958  0.7805  
##  
## Coefficients: (4 not defined because of singularities)  
##                               Estimate Std. Error t value Pr(>|t|)  
## (Intercept)            0.557411  0.092874  6.002 4.46e-09 ***  
## treatment             0.005129  0.066806  0.077  0.93885  
## men_pool              -0.361877  0.066029 -5.481 7.62e-08 ***  
## man                  -0.129761  0.048231 -2.690  0.00744 **  
## white                  NA        NA        NA        NA  
## age_clean             0.004271  0.001789  2.387  0.01747 *  
## gender_missing          NA        NA        NA        NA  
## race_missing            NA        NA        NA        NA  
## age_missing             NA        NA        NA        NA  
## treatment:men_pool  0.191665  0.095212  2.013  0.04480 *  
## ---
```

```
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.4709 on 390 degrees of freedom
## Multiple R-squared:  0.1202, Adjusted R-squared:  0.1089
## F-statistic: 10.65 on 5 and 390 DF,  p-value: 1.315e-09

##          2.5 %      97.5 %
## (Intercept) 0.3748144  0.74000662
## treatment    -0.1262162  0.13647372
## men_pool     -0.4916949 -0.23205979
## man          -0.2245870 -0.03493497
## white         NA        NA
## age_clean    -0.1829214  0.19146339
## gender_missing NA        NA
## race_missing  NA        NA
## age_missing   NA        NA
## treatment:men_pool  0.0968390  0.28649100
```

## Dropout Sensitivity Analyses

```
## =====  
  
## ROBUSTNESS CHECK: DROPOUT SENSITIVITY ANALYSES  
  
## =====  
  
## Dropout Summary:  
## Participants who finished but didn't select choice-7: 54  
## Participants who didn't finish: 9  
## Total dropouts after assignment: 63  
##  
## Running sensitivity analyses...  
##  
## --- SCENARIO 1: ASSUME DROPOUTS CHOSE MAN ---  
##  
## Model: female_pick ~ treatment * men_pool  
##  
##  
## --- SCENARIO 2: ASSUME DROPOUTS CHOSE WOMAN ---  
##  
## Model: female_pick ~ treatment * men_pool  
  
##           2.5 %     97.5 %  
## (Intercept)    0.71853484  0.85009261  
## treatment      -0.20725737  0.01862992  
## men_pool       -0.58212284 -0.35385155  
## treatment:men_pool  0.09571107  0.45016231
```