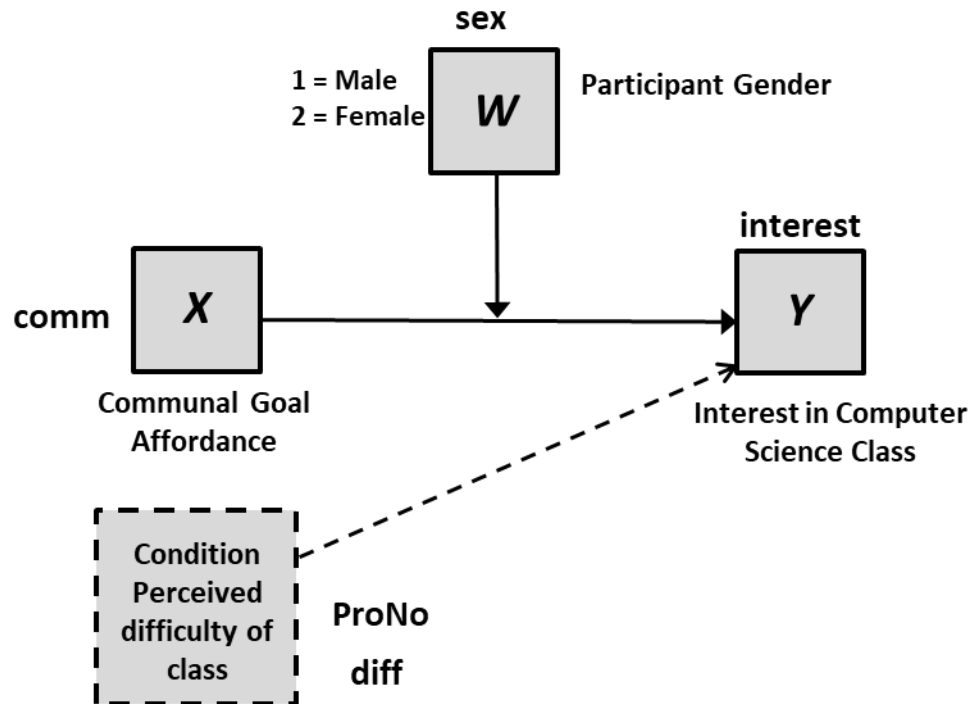


Moderation Activity: Science

Key



- 1) Estimate this model using both the base regression functions and PROCESS. Confirm your models are the same.

a) SPSS

```
compute commsex = comm*sex.
regression dep = interest /method = enter comm sex
commsex ProNo diff.
process x = comm /w = sex /y = interest /cov = ProNo
diff /model = 1 /intprobe=1.
```

b) SAS

```
data science;set science;commsex=comm*sex;run;
proc reg data=science;model interest=comm sex commsex
ProNo diff;run;
%process(data=science,cov=ProNo
diff,y=interest,x=comm,w=sex,model=1,intprobe=1);
```

c) R

```
lm(interest~comm*sex+ProNo+diff, data = science)
process(data=science, cov=c("ProNo", "diff"),
y="interest", x="comm", w="sex", model=1,intprobe=1)
```

2) Is the effect of communal goal affordance on interest moderated by gender?
No, there is not a significant interaction between communal goal affordance and gender in predicting interest ($b = -.0880$, $t(226) = -.5988$, $p = .5499$).

3) Probe the interaction: We expect a positive relationship for women and near zero relationship for men. Is this confirmed?
Actually, we find that there is a significant positive relationship between communal goal affordance in interest for both men ($b = .5488$, $t(226) = 4.66$, $p < .0001$) and for women ($b = .46$, $t(226) = 4.98$, $p < .0001$).

4) Swap the interaction and re-estimate, probe (use JN).

a) SPSS

```
process x = sex /w = comm /y = interest /cov = ProNo  
diff /model = 1/intprobe=1/jn=1.
```

b) SAS

```
%process (data=science, cov=ProNo diff, y=interest,  
x=sex, w=comm, model=1, intprobe=1, jn=1);
```

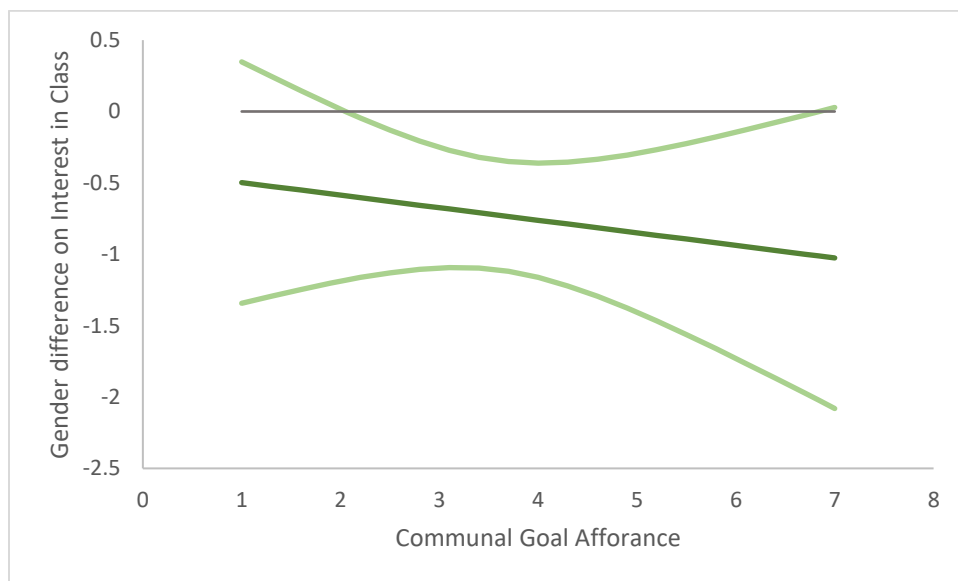
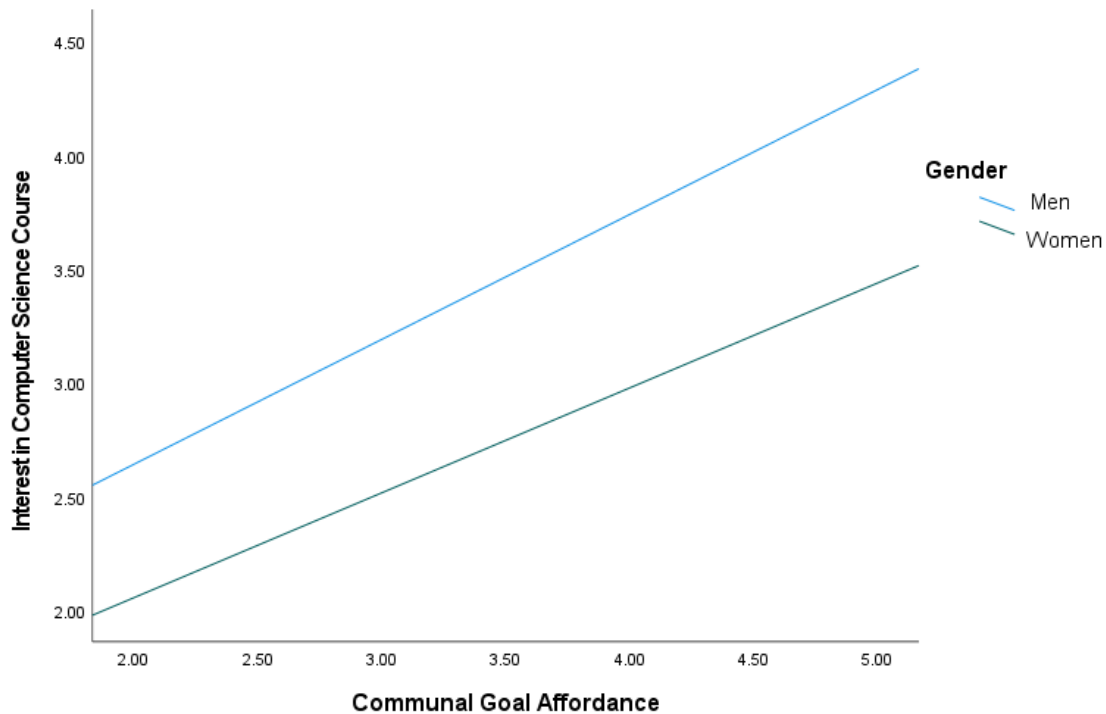
c) R

```
process (data=science, cov=c("ProNo", "diff"),  
y="interest", x="sex", w="comm", model=1, intprobe=1, jn=1)
```

d) Interpretation

The conditional effect of gender on interest is such that students with typical and high levels of communal goals show a significant difference on interest across gender. In particular, men have higher interest in women in the computer science class when they are at the median ($b = -.73$, $t(226) = -3.73$, $p = .0002$) and at the 84th percentile ($b = -.83$, $t(226) = 3.1753$, $p = .0017$) on communal goals. However, for those who are at the 16th percentile on communal goals ($W = 2$), there is no significant difference between men and women on interest in computer science ($b = -.59$, $t(226) = -1.92$, $p = .057$). The Johnson-Neyman technique revealed that students who are below 2.05 and those who are above 6.84 on communal goals show no gender difference in interest. Those who are between 2.05 and 6.84 on communal goals show a significant difference on interest, such that men are more interested in the computer science class than women.

5) Visualize the interaction using PROCESS and Interactive



6) Try mean-centering the predictors and seeing how this changes the regression results

The test of the interaction does not change, but the conditional effects do change. In particular, the group-weighted effect of communal goals on interest is 0.49 ($t(226) = 6.58, p < .0001$). Additionally, for two people who have average levels of communal goals, the man is expected to be .72 units more interested in the class than the woman ($t(226) = -3.67, p = .0003$).

7) Try writing a results section for this analysis.

We tested whether there was a significant interaction between participant gender and communal goal affordance when predicting interest in the computer science class, controlling for condition and perceived difficulty of the class. We did not find a significant interaction between communal goal affordance and gender in predicting interest ($b = -.0880$, $t(226) = -.5988$, $p = .5499$). There is a significant positive relationship between communal goal affordance and interest for both men ($b = .5488$, $t(226) = 4.66$, $p < .0001$) and for women ($b = .46$, $t(226) = 4.98$, $p < .0001$). The conditional effect of gender on interest is such that students with typical and high levels of communal goals show a significant difference on interest across gender. In particular, men have higher interest in women in the computer science class when they are at the median ($b = -.73$, $t(226) = -3.73$, $p = .0002$) and at the 84th percentile ($b = -.83$, $t(226) = 3.1753$, $p = .0017$) on communal goals. However, for those who are at the 16th percentile on communal goals ($W = 2$), there is no significant difference between men and women on interest in computer science ($b = -.59$, $t(226) = -1.92$, $p = .057$). The Johnson-Neyman technique revealed that students who are below 2.05 and those who are above 6.84 on communal goals show no gender difference in interest. Those who are between 2.05 and 6.84 on communal goals show a significant difference on interest, such that men are more interested in the computer science class than women.