Seeing is believing 3-way ANOVAs

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## Demographics

## Stratified by Image condition:Scientist gender:Participant gender  
## Not pictured:Female scientist:Men  
## n 35   
## STEM Career Interest (mean (SD)) 6.31 (0.72)   
## General STEM Interest (mean (SD)) 6.08 (0.70)   
## STEM Belonging (mean (SD)) 5.39 (1.25)   
## Identification with STEM (mean (SD)) 6.33 (0.60)   
## Stratified by Image condition:Scientist gender:Participant gender  
## Pictured:Female scientist:Men  
## n 50   
## STEM Career Interest (mean (SD)) 6.39 (0.66)   
## General STEM Interest (mean (SD)) 6.06 (0.72)   
## STEM Belonging (mean (SD)) 5.12 (1.18)   
## Identification with STEM (mean (SD)) 6.23 (0.76)   
## Stratified by Image condition:Scientist gender:Participant gender  
## Not pictured:Male scientist:Men  
## n 37   
## STEM Career Interest (mean (SD)) 6.09 (1.46)   
## General STEM Interest (mean (SD)) 6.05 (0.84)   
## STEM Belonging (mean (SD)) 5.31 (1.45)   
## Identification with STEM (mean (SD)) 6.27 (0.97)   
## Stratified by Image condition:Scientist gender:Participant gender  
## Pictured:Male scientist:Men  
## n 54   
## STEM Career Interest (mean (SD)) 6.44 (0.81)   
## General STEM Interest (mean (SD)) 6.06 (0.77)   
## STEM Belonging (mean (SD)) 5.03 (1.35)   
## Identification with STEM (mean (SD)) 6.31 (0.88)   
## Stratified by Image condition:Scientist gender:Participant gender  
## Not pictured:Female scientist:Women  
## n 31   
## STEM Career Interest (mean (SD)) 5.95 (1.16)   
## General STEM Interest (mean (SD)) 5.81 (0.64)   
## STEM Belonging (mean (SD)) 4.72 (1.27)   
## Identification with STEM (mean (SD)) 6.28 (0.63)   
## Stratified by Image condition:Scientist gender:Participant gender  
## Pictured:Female scientist:Women  
## n 44   
## STEM Career Interest (mean (SD)) 6.49 (0.56)   
## General STEM Interest (mean (SD)) 6.22 (0.48)   
## STEM Belonging (mean (SD)) 5.00 (1.34)   
## Identification with STEM (mean (SD)) 6.42 (0.68)   
## Stratified by Image condition:Scientist gender:Participant gender  
## Not pictured:Male scientist:Women  
## n 34   
## STEM Career Interest (mean (SD)) 6.40 (0.68)   
## General STEM Interest (mean (SD)) 6.02 (0.67)   
## STEM Belonging (mean (SD)) 4.93 (1.33)   
## Identification with STEM (mean (SD)) 6.38 (0.69)   
## Stratified by Image condition:Scientist gender:Participant gender  
## Pictured:Male scientist:Women  
## n 48   
## STEM Career Interest (mean (SD)) 5.97 (1.11)   
## General STEM Interest (mean (SD)) 5.84 (0.85)   
## STEM Belonging (mean (SD)) 4.80 (1.31)   
## Identification with STEM (mean (SD)) 5.97 (1.03)

Table with majors:

| engineer.or.ns | major.schools | n |
| --- | --- | --- |
| FALSE | Architecture | 1 |
| FALSE | Humanities | 6 |
| FALSE | Humanities, Social science | 1 |
| FALSE | Social science | 13 |
| TRUE | Engineering | 172 |
| TRUE | Engineering, Humanities | 5 |
| TRUE | Engineering, Music | 1 |
| TRUE | Engineering, Natural science | 9 |
| TRUE | Engineering, Social science | 21 |
| TRUE | Humanities, Natural science | 8 |
| TRUE | Natural science | 85 |
| TRUE | Natural science, Social science | 11 |

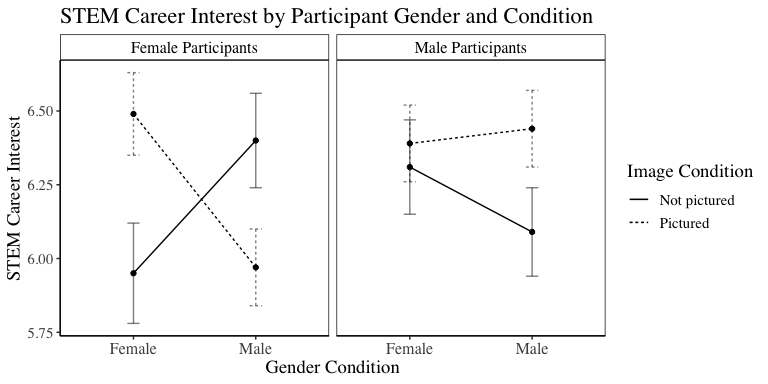
We recruited 749 participants from an undergraduate psychology subject pool to participate in an online study. Of these participants, 416 were excluded from analyses because they did not finish the survey, were enrolled as students in the research lab where the study was conducted, did not identify as men or women, selected more than 4 college majors, and/or failed manipulation checks. This resulted in a final dataset of 333 participants, *M* age (SD) = 19.31 years (1.37), 44% white, 9% Black, 46% Asian, 19% Latino/a, 2% Native Am., Native AK, Native HI, Pac. Isl., 1% no response, 47% women.

### Scale reliabilities

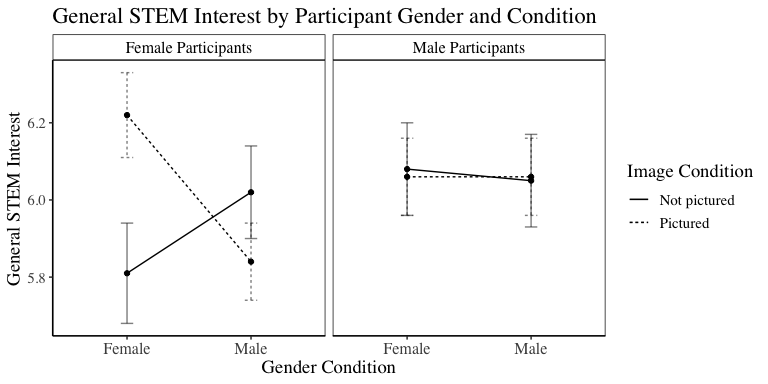
interest was measured using a 18-item scale. Responses were measured on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*, Cronbach’s = 0.94. A sample item is: “I do NOT like STEM.”  
lead was measured using a 6-item scale. Responses were measured on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*, Cronbach’s = 0.95. A sample item is: “I would consider choosing a career that uses STEM.”  
pj.fit was measured using a 5-item scale. Responses were measured on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*, Cronbach’s = 0.95. A sample item is: “My abilities fit the demands of a STEM job.”  
confidence was measured using a 3-item scale. Responses were measured on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*, Cronbach’s = 0.93. A sample item is: “I feel confident in my development of useful skills.”  
selfeff was measured using a 4-item scale. Responses were measured on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*, Cronbach’s = 0.71. A sample item is: “When I make plans related to STEM, I am certain I can make them work.”  
dd.id was measured using a 3-item scale. Responses were measured on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*, Cronbach’s = 0.83. A sample item is: “How important is STEM to you?”  
dd.threat was measured using a 5-item scale. Responses were measured on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*, Cronbach’s = 0.90. A sample item is: “My STEM related classes this year are likely to be very difficult.”  
dd.challenge was measured using a 5-item scale. Responses were measured on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*, Cronbach’s = 0.94. A sample item is: “I have the basic skills and abilities to be successful in my STEM related classes this year.”  
dd.belonging was measured using a 4-item scale. Responses were measured on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*, Cronbach’s = 0.87. A sample item is: “I feel connected to my peers in STEM.”  
gender.belief was measured using a 4-item scale. Responses were measured on a 7-point Likert-type scale (1 = *strongly disagree*, 7 = *strongly agree*, Cronbach’s = 0.68. A sample item is: “Most women can make it in STEM if they try.”

## Results

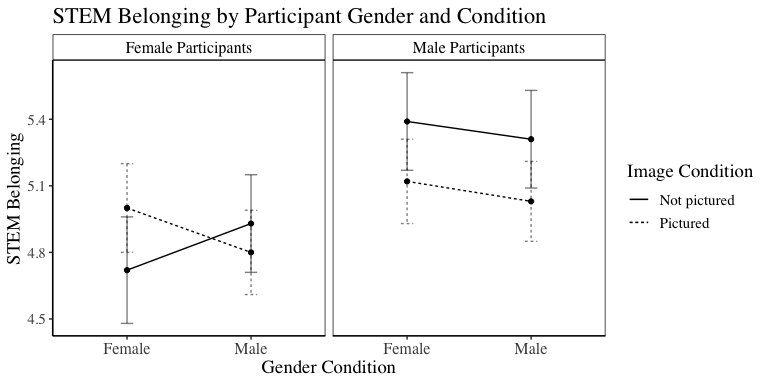
## STEM career interest

There was a significant main effect of (intercept) on STEM career interest, .  
The main effect of image condition on STEM career interest was not significant, *F*(1, 325) = 1.69, *p* = .19, partial = 0.01.  
The main effect of scientist gender on STEM career interest was not significant, *F*(1, 325) = 0.35, *p* = .55, partial = <.001.  
The main effect of participant gender on STEM career interest was not significant, *F*(1, 325) = 1.08, *p* = .30, partial = <.001.  
The image condition x scientist gender interaction effect on STEM career interest was not significant, *F*(1, 325) = 2.87, *p* = .09, partial = 0.01.  
The image condition x participant gender interaction effect on STEM career interest was not significant, *F*(1, 325) = 0.62, *p* = .43, partial = <.001.  
The scientist gender x participant gender interaction effect on STEM career interest was not significant, *F*(1, 325) = 0.07, *p* = .79, partial = <.001.  
There was a significant image condition x scientist gender x participant gender interaction effect on STEM career interest, *F*(1, 325) = 9.30, *p* = .002, partial = 0.03.  


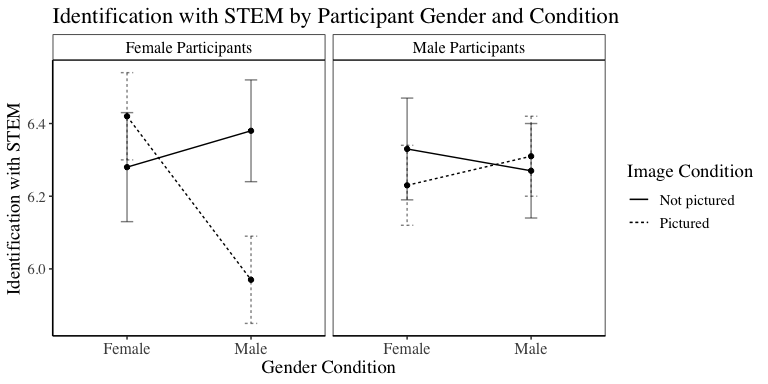
## general STEM interest

There was a significant main effect of (intercept) on general STEM interest, .  
The main effect of image condition on general STEM interest was not significant, *F*(1, 325) = 0.48, *p* = .49, partial = <.001.  
The main effect of scientist gender on general STEM interest was not significant, *F*(1, 325) = 0.37, *p* = .55, partial = <.001.  
The main effect of participant gender on general STEM interest was not significant, *F*(1, 325) = 1.22, *p* = .27, partial = <.001.  
The image condition x scientist gender interaction effect on general STEM interest was not significant, *F*(1, 325) = 3.08, *p* = .08, partial = 0.01.  
The image condition x participant gender interaction effect on general STEM interest was not significant, *F*(1, 325) = 0.58, *p* = .45, partial = <.001.  
The scientist gender x participant gender interaction effect on general STEM interest was not significant, *F*(1, 325) = 0.17, *p* = .68, partial = <.001.  
The image condition x scientist gender x participant gender interaction effect on general STEM interest was not significant, *F*(1, 325) = 3.46, *p* = .06, partial = 0.01.  


## STEM belonging

There was a significant main effect of (intercept) on STEM belonging, .  
The main effect of image condition on STEM belonging was not significant, *F*(1, 325) = 0.46, *p* = .50, partial = <.001.  
The main effect of scientist gender on STEM belonging was not significant, *F*(1, 325) = 0.07, *p* = .80, partial = <.001.  
There was a significant main effect of participant gender on STEM belonging, *F*(1, 325) = 5.76, *p* = .02, partial = 0.02.  
The image condition x scientist gender interaction effect on STEM belonging was not significant, *F*(1, 325) = 0.52, *p* = .47, partial = <.001.  
The image condition x participant gender interaction effect on STEM belonging was not significant, *F*(1, 325) = 1.44, *p* = .23, partial = <.001.  
The scientist gender x participant gender interaction effect on STEM belonging was not significant, *F*(1, 325) = 0.08, *p* = .78, partial = <.001.  
The image condition x scientist gender x participant gender interaction effect on STEM belonging was not significant, *F*(1, 325) = 0.48, *p* = .49, partial = <.001.  


## identification with STEM

There was a significant main effect of (intercept) on identification with STEM, .  
The main effect of image condition on identification with STEM was not significant, *F*(1, 325) = 0.89, *p* = .35, partial = <.001.  
The main effect of scientist gender on identification with STEM was not significant, *F*(1, 325) = 0.87, *p* = .35, partial = <.001.  
The main effect of participant gender on identification with STEM was not significant, *F*(1, 325) = 0.06, *p* = .81, partial = <.001.  
The image condition x scientist gender interaction effect on identification with STEM was not significant, *F*(1, 325) = 1.33, *p* = .25, partial = <.001.  
The image condition x participant gender interaction effect on identification with STEM was not significant, *F*(1, 325) = 0.32, *p* = .57, partial = <.001.  
The scientist gender x participant gender interaction effect on identification with STEM was not significant, *F*(1, 325) = 1.08, *p* = .30, partial = <.001.  
The image condition x scientist gender x participant gender interaction effect on identification with STEM was not significant, *F*(1, 325) = 3.82, *p* = .05, partial = 0.01.  


Big ANOVA table:

| Predictor | STEM Career Interest | General STEM Interest | STEM Belonging | Identification with STEM |
| --- | --- | --- | --- | --- |
| Image Condition | 1.69, *p* = .19, partial = 0.01 | 0.48, *p* = .49, partial < 0.01 | 0.46, *p* = .50, partial < 0.01 | 0.89, *p* = .35, partial < 0.01 |
| Scientist Gender | 0.35, *p* = .55, partial < 0.01 | 0.37, *p* = .55, partial < 0.01 | 0.07, *p* = .80, partial < 0.01 | 0.87, *p* = .35, partial < 0.01 |
| Participant Gender | 1.08, *p* = .30, partial < 0.01 | 1.22, *p* = .27, partial < 0.01 | 5.76, *p* = .02, partial = 0.02 | 0.06, *p* = .81, partial < 0.01 |
| Image Condition X Scientist Gender | 2.87, *p* = .09, partial = 0.01 | 3.08, *p* = .08, partial = 0.01 | 0.52, *p* = .47, partial < 0.01 | 1.33, *p* = .25, partial < 0.01 |
| Image Condition X Participant Gender | 0.62, *p* = .43, partial < 0.01 | 0.58, *p* = .45, partial < 0.01 | 1.44, *p* = .23, partial < 0.01 | 0.32, *p* = .57, partial < 0.01 |
| Scientist Gender X Participant Gender | 0.07, *p* = .79, partial < 0.01 | 0.17, *p* = .68, partial < 0.01 | 0.08, *p* = .78, partial < 0.01 | 1.08, *p* = .30, partial < 0.01 |
| Image Condition X Scientist Gender X Participant Gender | 9.30, *p* = .002, partial = 0.03 | 3.46, *p* = .06, partial = 0.01 | 0.48, *p* = .49, partial < 0.01 | 3.82, *p* = .05, partial = 0.01 |

Output pairwise contrast results:

| new.contrast | formatted.result | pretty.outcome |
| --- | --- | --- |
| Women Male scientist Pictured - Men Male scientist Pictured | *t*(325) = -2.59, *p* = .02 Cohen’s *d* = -0.51 (-0.91, -0.12) | STEM career interest |
| Women Male scientist Pictured - Men Male scientist Pictured | *t*(325) = -1.47, *p* = .19 Cohen’s *d* = -0.29 (-0.68, 0.10) | general STEM interest |
| Women Male scientist Pictured - Men Male scientist Pictured | *t*(325) = -0.91, *p* = .61 Cohen’s *d* = -0.18 (-0.57, 0.21) | STEM belonging |
| Women Male scientist Pictured - Men Male scientist Pictured | *t*(325) = -2.14, *p* = .07 Cohen’s *d* = -0.42 (-0.82, -0.03) | identification with STEM |

| new.contrast | formatted.result | pretty.outcome |
| --- | --- | --- |
| Women Male scientist Pictured - Women Female scientist Pictured | *t*(325) = -2.71, *p* = .02 Cohen’s *d* = -0.57 (-0.98, -0.15) | STEM career interest |
| Women Male scientist Pictured - Women Female scientist Pictured | *t*(325) = -2.48, *p* = .03 Cohen’s *d* = -0.52 (-0.93, -0.10) | general STEM interest |
| Women Male scientist Pictured - Women Female scientist Pictured | *t*(325) = -0.74, *p* = .61 Cohen’s *d* = -0.16 (-0.57, 0.26) | STEM belonging |
| Women Male scientist Pictured - Women Female scientist Pictured | *t*(325) = -2.72, *p* = .03 Cohen’s *d* = -0.57 (-0.98, -0.15) | identification with STEM |

| new.contrast | formatted.result | pretty.outcome |
| --- | --- | --- |
| Women Female scientist Not pictured - Women Female scientist Pictured | *t*(325) = -2.50, *p* = .02 Cohen’s *d* = -0.59 (-1.05, -0.12) | STEM career interest |
| Women Female scientist Not pictured - Women Female scientist Pictured | *t*(325) = -2.41, *p* = .03 Cohen’s *d* = -0.57 (-1.03, -0.10) | general STEM interest |
| Women Female scientist Not pictured - Women Female scientist Pictured | *t*(325) = -0.92, *p* = .61 Cohen’s *d* = -0.22 (-0.68, 0.25) | STEM belonging |
| Women Female scientist Not pictured - Women Female scientist Pictured | *t*(325) = -0.76, *p* = .45 Cohen’s *d* = -0.18 (-0.64, 0.28) | identification with STEM |

| new.contrast | formatted.result | pretty.outcome |
| --- | --- | --- |
| Men Female scientist Pictured - Women Female scientist Pictured | *t*(325) = -0.52, *p* = .61 Cohen’s *d* = -0.11 (-0.51, 0.30) | STEM career interest |
| Men Female scientist Pictured - Women Female scientist Pictured | *t*(325) = -1.04, *p* = .30 Cohen’s *d* = -0.22 (-0.62, 0.19) | general STEM interest |
| Men Female scientist Pictured - Women Female scientist Pictured | *t*(325) = 0.43, *p* = .67 Cohen’s *d* = 0.09 (-0.32, 0.49) | STEM belonging |
| Men Female scientist Pictured - Women Female scientist Pictured | *t*(325) = -1.18, *p* = .32 Cohen’s *d* = -0.24 (-0.65, 0.16) | identification with STEM |

Output means by gender and condition:

## `summarise()` has grouped output by 'gender.cond', 'participant.gender'. You  
## can override using the `.groups` argument.

| gender.cond | participant.gender | image.cond | lead.all | interest.all | dd.belonging.all | dd.id.all |
| --- | --- | --- | --- | --- | --- | --- |
| Female scientist | Women | Not pictured | M = 5.95, SD = 1.16 | M = 5.81, SD = 0.64 | M = 4.72, SD = 1.27 | M = 6.28, SD = 0.63 |
| Female scientist | Women | Pictured | M = 6.49, SD = 0.56 | M = 6.22, SD = 0.48 | M = 5.00, SD = 1.34 | M = 6.42, SD = 0.68 |
| Female scientist | Men | Not pictured | M = 6.31, SD = 0.72 | M = 6.08, SD = 0.70 | M = 5.39, SD = 1.25 | M = 6.33, SD = 0.60 |
| Female scientist | Men | Pictured | M = 6.39, SD = 0.66 | M = 6.06, SD = 0.72 | M = 5.12, SD = 1.18 | M = 6.23, SD = 0.76 |
| Male scientist | Women | Not pictured | M = 6.40, SD = 0.68 | M = 6.02, SD = 0.67 | M = 4.93, SD = 1.33 | M = 6.38, SD = 0.69 |
| Male scientist | Women | Pictured | M = 5.97, SD = 1.11 | M = 5.84, SD = 0.85 | M = 4.80, SD = 1.31 | M = 5.97, SD = 1.03 |
| Male scientist | Men | Not pictured | M = 6.09, SD = 1.46 | M = 6.05, SD = 0.84 | M = 5.31, SD = 1.45 | M = 6.27, SD = 0.97 |
| Male scientist | Men | Pictured | M = 6.44, SD = 0.81 | M = 6.06, SD = 0.77 | M = 5.03, SD = 1.35 | M = 6.31, SD = 0.88 |

Output means by gender:

| participant.gender | lead.all | interest.all | dd.belonging.all | dd.id.all |
| --- | --- | --- | --- | --- |
| Women | M = 6.20, SD = 0.94 | M = 5.98, SD = 0.70 | M = 4.87, SD = 1.30 | M = 6.25, SD = 0.81 |
| Men | M = 6.33, SD = 0.94 | M = 6.06, SD = 0.75 | M = 5.18, SD = 1.30 | M = 6.28, SD = 0.81 |