Type of STEM Field Moderates Gender Differences in Implicit and Explicit Identity Balance

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INTRODUCTION

- Underrepresentation of women in STEM
  - Certain fields have lower representation (i.e. Engineering/Computer Science)
  - Persistent stereotypes influence belonging and identification[2]
- Balanced Identity Theory[4]:
  - Those who achieve balance across central personal-professional identities are more likely persist in their academic and career pursuits

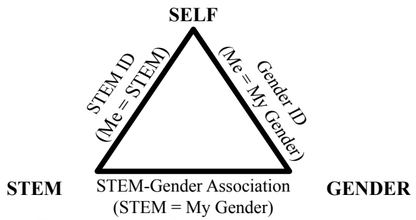


Figure 1. Components of Balanced Identity Framework

RESEARCH QUESTIONS

1. To what extent is participant major correlated with explicit and implicit balanced identity scores?
2. To what degree do these relationships vary as a function of participant gender?

METHOD

Participants (N = 146)

- Juniors/Seniors from 3 California State University schools
- Science (73.3%), Engineering and Computer Science (26.7%)
- Women (58.9%), Men (41.1%)
- *Hispanic (58.9%), White (32.9%)

Procedures

- Participants completed 3 Implicit Association Tests (IAT)[3] and survey items at the start of each semester (data from Wave 3)

Measures

Implicit Measures;

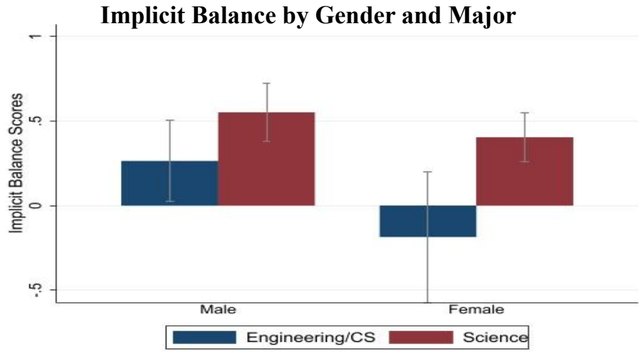
Gender IAT (Me = My Gender)
STEM IAT (Me = STEM)
Gender-STEM IAT (STEM = My Gender)

Explicit Measures:

Gender ID[5] (e.g. "Being a woman is an important part of my self-image")
STEM ID[1] (e.g. "Being a scientist is an important reflection of who I am")
Stereotype Endorsement[6] (e.g. "In general, men may be better than women at engineering")

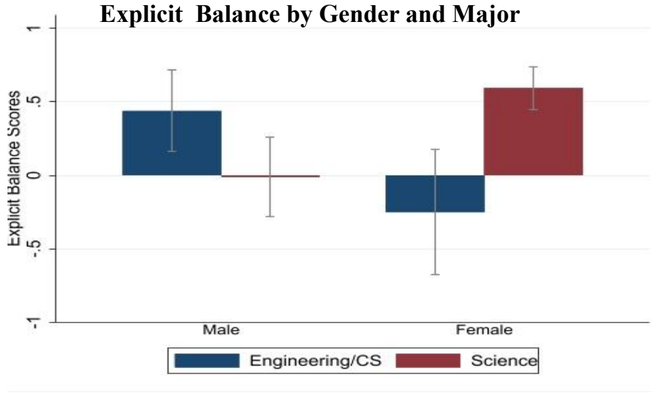
*Black - 3.42% , Asian - 2.05% , Hawaiian/Pacific - 0% , Native - 0.68%, Other - 2.05%

RESULTS



Implicit Gender by Major Interaction (non-significant)

- Science majors had higher implicit balance scores than Eng/CS (b_1=0.41 p<.01, β=.29)
- Females had lower implicit balance scores than males (b_2=-0.23, p<.05, β=-0.18)



Explicit Gender by Major Interaction

- (b_3=1.30, p<.001, β=0.86)
- Males in EngCS had higher explicit balance than those in Science
- Females in Eng/CS had loewe explicit balance than those in Science

DISCUSSION

Differences in implicit and explicit identity balance suggest the importance of:

- Measures
  - Using both implicit and explicit measures to capture different associations
- Potential Covariates
  - Teasing out gender-specific nuances *within* various STEM fields
- Theoretical Validation
  - Continued efforts to utilize balance score measures for predictive outcomes

ADDITIONAL RESULTS

Table 1. Summary of Descriptive Statistics

		Males (n=60)		*Females (n=86)*	
Variable		*M*	*SD*	*M*	*SD*
Explicit					
	Gender Identity	3.34	1.034	3.91	1.03
	Stereotype Endorsement	3.87	2.26	5.82	1.68
	STEM Identity	3.84	0.7	4.06	0.72
	Standardized Balance	0.19	0.79	0.48	0.71
Implicit					
	Gender Identity IAT	0.8	0.52	0.57	0.55
	Stereotype Endorsement IAT	0.52	0.55	0.34	0.56
	STEM Identity IAT	0.57	0.56	0.56	0.48
	Standardized Balance	0.42	0.58	0.32	0.67

Table 2. Summary of 2-Step Sequential Regression Model F-Tests

Step	*SS*	*df*	*MS*	*F*	R^2	*ΔF*	*Δdf*	ΔR^2
				Implicit Balance Scores				
1	4.61	2	2.30	6.21**	.08			
2	5.17	3	1.72	4.66**	.09	1.51	1	.01
				Explicit Balance Scores				
1	3.04	2	1.52	2.74†	.04			
2	13.30	3	4.43	9.10***	.16	21.06***	1	.12

REFERENCES

[1]Chemers et al., 201.
[2]Dennehy et al., 2018
[3]Greenwald et al., 2002
[4]Greenwald et al., 1998
[5]Luhtanen et al., 1992
[6]Schmader et al., 2004

ACKNOWLEDGEMENTS

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