



Undergraduate Socialization in Engineering: The Role of Institutional Tactics and Proactive Behaviors

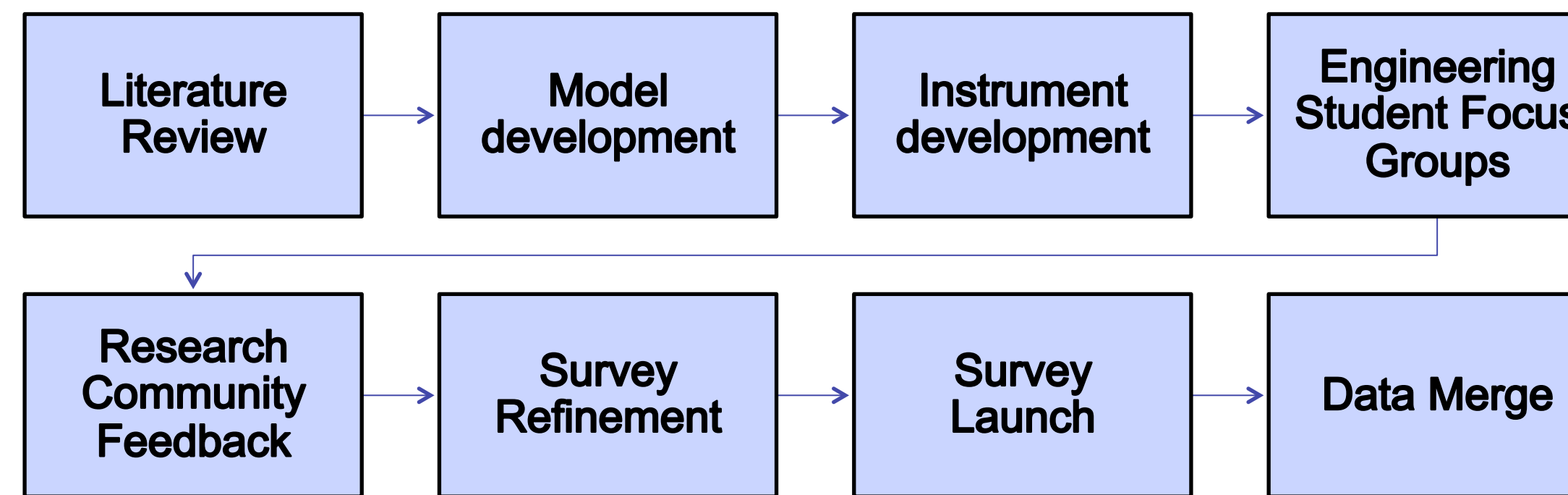
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Motivation

Higher education literature suggests **socioeconomic (SES) variables and student background characteristics** impact collegiate success. In this work we we hypothesize that **an underlying set of socialization processes** makes students more or less likely to engage in activities that are **associated with success**. We describe a modified model of undergraduate socialization. Our work is guided by three hypotheses:

1. Engineering students with different levels of pre-college of academic and social capital experience socialization into engineering differently.
2. Socialization processes inform students' behaviors in college, including their choices to participate in, or forego, activities such as co-curricular engineering design teams and professional engineering societies.
3. Students who participate in co-curricular engineering activities have different academic and social outcomes than their counterparts who do not participate in co-curricular engineering activities.

Methods



Sample Description

Table 1
Descriptive Statistics for Sample and National Comparison

	NCES National Statistics (%)	LARC Sample (%)	RIEF Sample (%)
Gender			
Male	(81.70)	2,989 (74.32)	597 (59.82)
Female	(18.30)	1,033 (25.68)	401 (40.18)
Race			
African American/Black	(4.45)	128 (3.18)	26 (1.61)
American Indian/Native American	(0.53)	36 (.90)	14 (1.4)
Asian American/Pacific Islander	(12.40)	1,109 (27.57)	295 (29.56)
European American/White (non-Hispanic)	(69.45)	2,512 (62.46)	615 (61.62)
Hispanic American/Latino/a	(6.94)	217 (5.40)	53 (5.31)
Multiracial	-	334 (3.30)	101 (10.12)
Other	(7.46)	232 (5.77)	54 (5.41)

Notes: Bachelor's degrees conferred by degree-granting institutions, by sex, race/ethnicity, and field of study: 2009-10 https://nces.ed.gov/programs/digest/d11/tables/dt11_301.asp

Preliminary Analyses

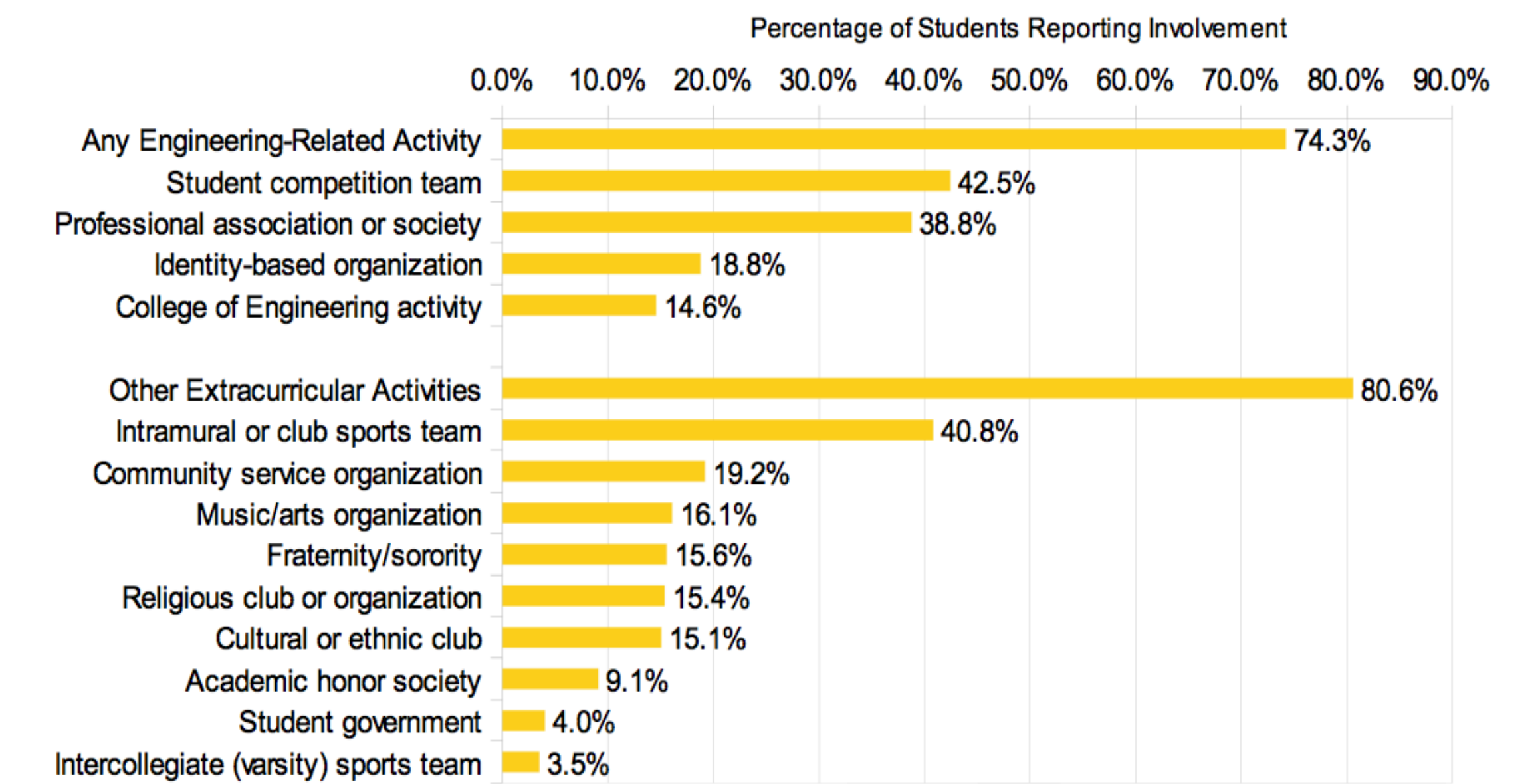


Figure 1. Self-reported participation rates in engineering-related co-curricular activities and non-engineering extra-curricular activities.

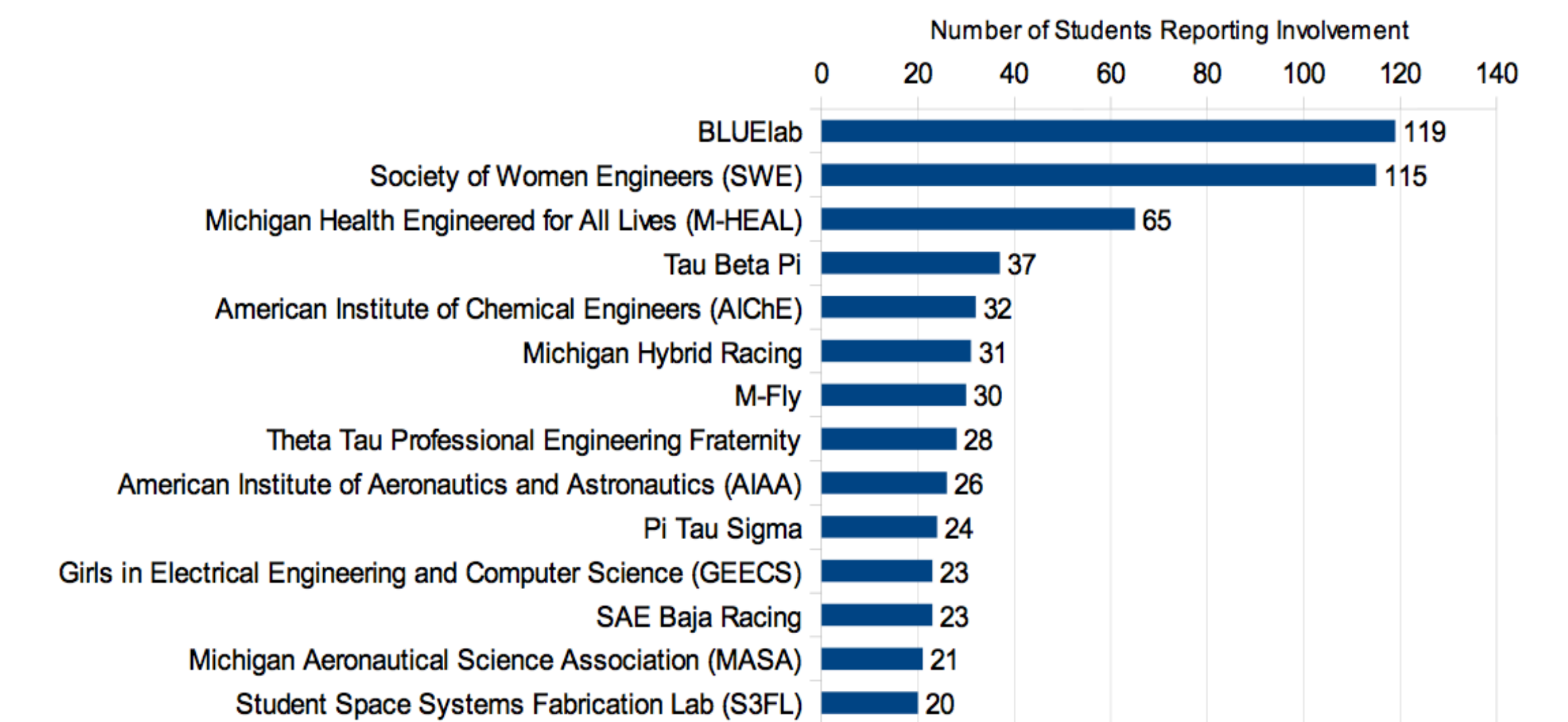
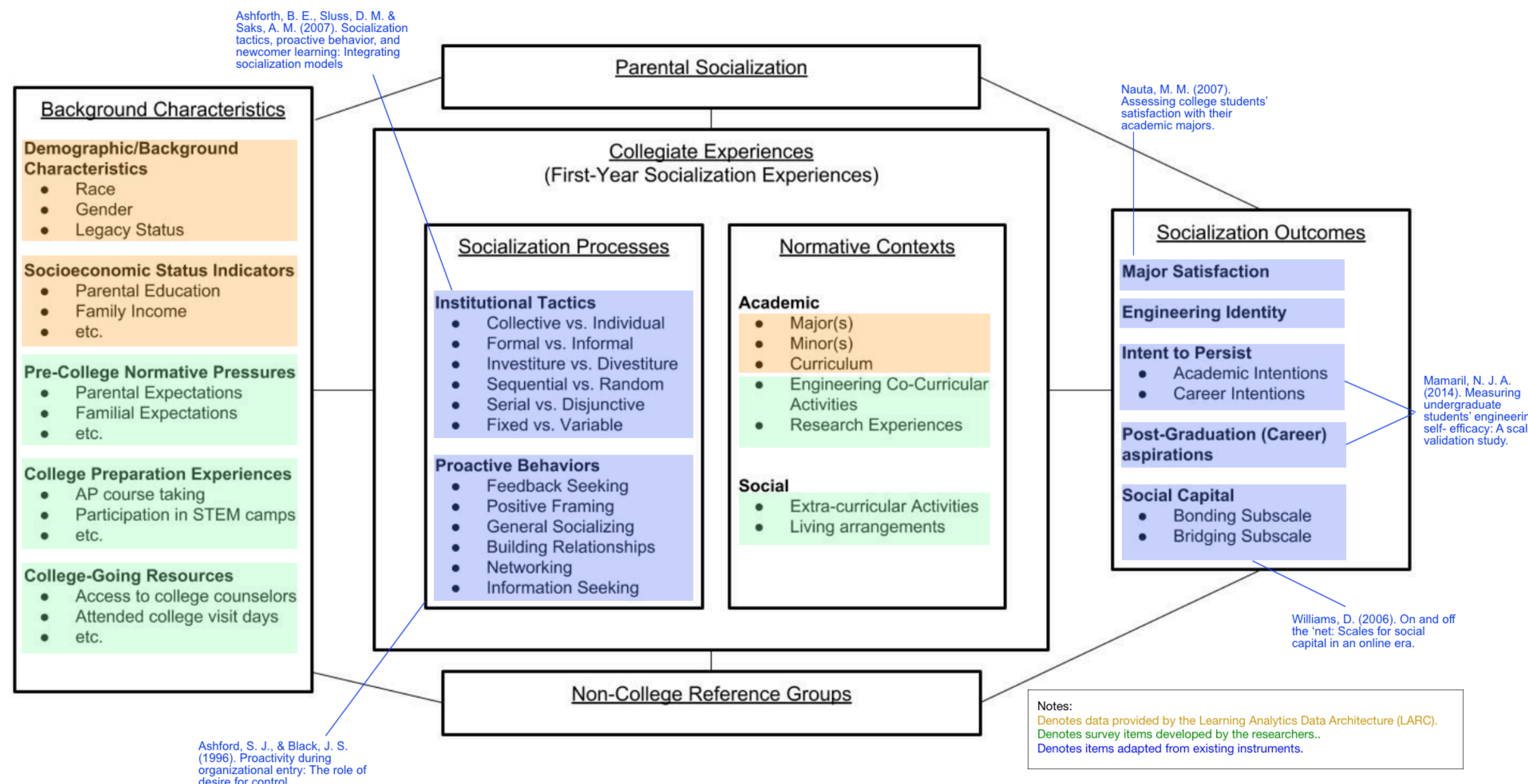


Figure 2. Most frequently self-reported co-curricular engineering-related activities (N = 975).

Conceptual Model



Summary

Goal: Understand the factors that shape students' socialization into engineering and development into engineering practitioners.

Approach:

- Use Weidman's model of undergraduate socialization to develop conceptual framework.
- Develop and pilot test survey.
- Administer survey to ~4,000 engineering (~25% response rate).

Findings: Our survey sample is representative of the University of Michigan's College of Engineering with respect to race/ethnicity, academic major, and first-generation status.

Acknowledgements

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