

Background

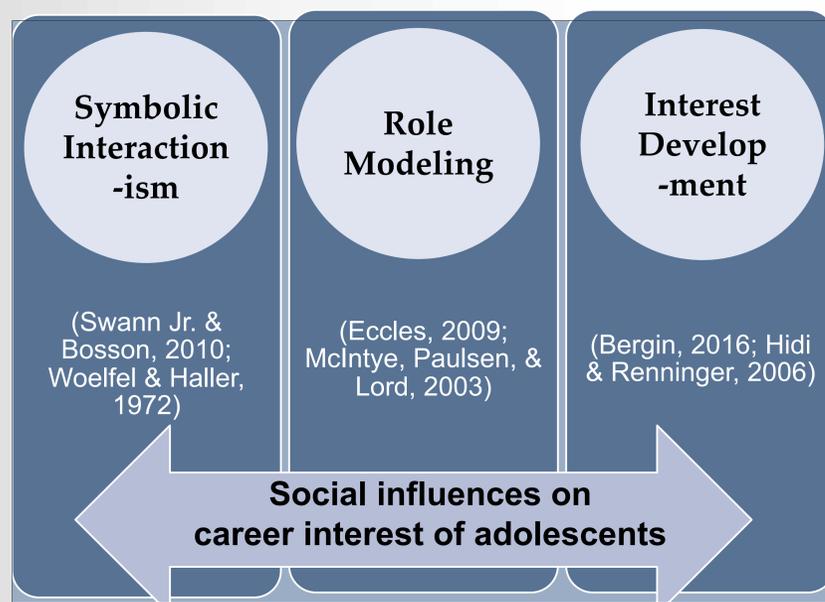
Prior research on STEM pathways tended to focus on predicting STEM career entry with individual psychosocial (e.g., career aspirations, expectancy-value beliefs) and contextual factors (e.g., families, peers, and schools).

Few studies have explored the **sources of interest in STEM careers** among young students, which could inform and design interventions to broaden participation in STEM.

Research Questions

How do adolescents with a career interest in engineering describe the persons and/or events that inspired their career aspirations?

Theoretical Perspectives



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Methods

Research Approach: Qualitative Content Analysis

Sample: 147 middle/high school students (61 female, 77 male, 9 non-binary gender) who participated in an out-of-school time engineering program in the southwest U.S.

Data: Student essays with 120+ words responding to the question “who and/or what inspired your interest in pursuing a job/occupation in engineering?”

Analysis: Deductive coding: cyclical process by 3 coders (4 cycles in total); inter-rater reliability (IRR) > 0.90 reached during final round of coding.

Categories	Sub Codes				
Parent	Role Model		Encourager		
Family	Role Model		Encourager		
School Educator	Role Model		Encourager		
Other Educator	Role Model		Encourager		
Peer/Friend	Role Model		Encourager		
Culture	Media		Toys		Other
Activity	Household	Academic Hands-on	Academic Guest Speaker	Academic Field Trips	Other Academic Programs

Results

Two key themes emerged from grouping data with similar codes into broader categories:

1. Influential Others. Parents and family members (e.g., grandparents, aunts/uncles) were the most commonly assigned **role model** codes for students’ responses, whereas parents and school teachers were the most commonly assigned **encourager** codes. Relatively few students mentioned peers and non-school educators as affecting their career interest in engineering.

*“Since my **parents** are **engineers**, they always talked about it and I got to learn some interesting things from going to my dad’s business or from when my mom helped me do my science fair projects.”*

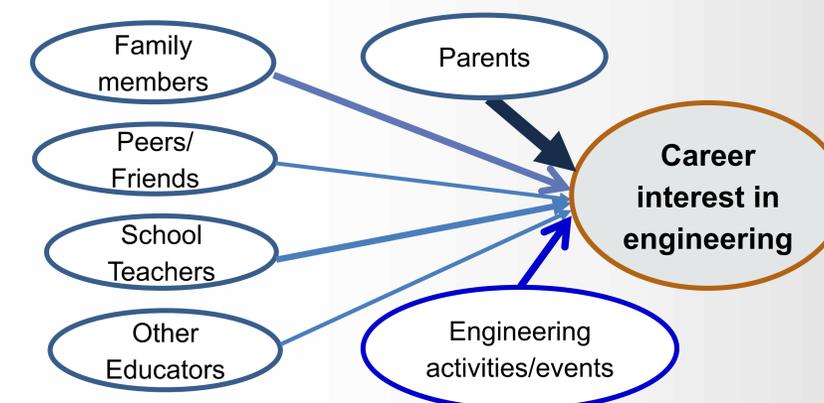
Bryan, White Male

Results (cont.)

2. Engineering Related Activities/Events. Many students emphasized that their experience of playing with engineering-related toys (e.g., Lego building blocks), watching media programs (e.g., aerospace documentaries), and using technological devices (e.g., computer, tablets) stimulated their interest in pursuing a career in engineering fields.

*“As a kid, I remember playing with Legos, and **creating** different things. My parents told me that one day I could probably be an engineer...I guess that always stayed in my head, because even now I feel that the career options that the field of engineering really gives me an outlet to my interests and creativity.”*

Pablo, Hispanic Male



Discussion

- **Key Finding:** The top thematic category—influential others—corresponds to Woelfel and Haller’s (1972) defined *significant person*, who influences the individual’s interest either through by example (*a model*) or direct socialization/interaction (*an encourager or definer*).
- **Implication:** Engage parents and teachers in programs that seek to enhance their role, knowledge, and skills as encourager in stimulating interest in STEM careers among young students.
- **Future Research:** Extend to other STEM areas, such as physical sciences, mathematics, and information technology, where women and racial/ethnic minorities are severely underrepresented.