Social Influences on Career Interest in Engineering among Adolescents

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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

Symbolic Interactionism  
Swann Jr., Bosson, Woelfel & Haller, 2010
  
Role Modeling  
Eccles, 2009; McIntyre, Paaswine, & Lord, 2003
  
Interest Development  
Bergin, 2016; Hidi & Renninger, 2006

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.

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.

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.

Results (cont.)

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“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.

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