Inspiring Engineers to Think About Their Education: An Exploration of the Impacts of Surveys on Participants

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What is the Engineering Majors Survey?
- Administered to a nationally representative sample of engineering students from 27 postsecondary education institutions across the country
- Designed as a "longitudinal study," a survey taken by the same group on multiple occasions, to facilitate measuring change over time
- Asks students about their current plan of study, school experiences, beliefs, expectations, interests, and future career goals, with a focus on Innovation and Entrepreneurship
- The first two waves have been administered, with EMS 1.0 in Winter/Spring 2015 and EMS 2.0 a year later in 2016. A third wave is planned for next year.

Research Question Progression

RQ1: What are students thinking about after taking this survey?
- Variety of New Ideas
- Emotional Reactions
- Goal Setting

RQ2: How is a survey not a neutral data collection instrument?

Sample for the Present Study
At the end of the EMS 1.0 survey, participants were thanked for their education in new or different ways? Please describe.

"To what extent did this survey inspire you to think about your education in new or different ways? Please describe.

Can a Survey be an Intervention?
Panel Conditioning:
- The experience of taking a survey may influence the response of a participant in subsequent surveys, due to changes in reporting or behavior (Lynn and Buck et al., 2005).
- It is especially relevant when dealing with a topic the respondent knew little about (Lazarfeld, 1940).
- Effects have been measured in psychology, public opinion and social sciences studies.

Why might this happen? One possibility is Reflection:
- Reflection is "exploring the meaning of experiences and the consequences of the meanings for future action" (CPREE).
- Emotional reactions may initiate reflection (Walther et al., 2011).

Students were most likely to report new self-awareness and new thoughts about their undergraduate education after taking the survey. A small subset of 60 students expressed views on engineering education in general, and this category had the highest proportion of negative responses (20/60).

Note: Each response was coded for as many topics as applied. Emotional reactions were mutually exclusive.

Survey Responses by Student Attributes

Conclusions
- The survey helped many students think about their education and future careers differently.
- Some even made goals for the future, possibly based on new awareness of opportunities, increased self-awareness, and reflective thinking.

Further Research

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