Engineering Prosocial Engagement in Electrical & Computer Engineering

PI: Brock J. LaMeres, lameres@montana.edu | Co-PIs: Jessie L. Smith, jsismith@montana.edu
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Abstract & Motivation
This poster presents the results of a project conducted at Montana State University (MSU) to measure the prosocial affordance beliefs about the electrical engineering (EE) profession and its effect on student motivation to persist in EE. This poster also presents the initial results of a classroom intervention where students are given a video production assignment that forces them to make connections between EE course material and its prosocial affordance.

Research Design
Survey to Measure Student Goals & Motivation to Persist
Year 1: Give survey w/ existing instruments that measure:
- agency and prosocial stereotypes about EE
- agency and prosocial trait endorsements
- experience of interest in EE
- persistence intentions in EE

Year 2: Pilot survey in introductory EE course (n=77)
- analyze data for differences in prosocial vs. agency beliefs
- test mediating variables: interest & persistence

Year 3: “Public Communications Video Assignment”
- students create a 2-3 minute video discussing a EE topic covered in class in their own words.
- the control group simply describes the technical details of the topic.
- the experiment group describes how the topic helps others, benefits society, and affords opportunities to work with others (forcing the student to think about the prosocial value of EE).
- when students upload video, they take a survey on the video creation experience
- when students upload video, they also take a survey on their prosocial/agency beliefs and persistence intentions.

Implementation
- Initial survey administered to students in an introductory-level EE course (n=77) during 2017 academic year.
- Public video assignment administered in same class a year later (n=71). The class was randomly assigned to control/experiment groups. Each group received their own unique instructions on how to create the video.

Analysis & Results (Work In Progress)
R1: Does Increased Prosocial Beliefs about EE Relate Persistence Intentions?
- No significant difference was seen between the control and experiment group after the classroom intervention.
- Upon a manipulation check, it was found that only 13 of the 36 (36%) in the control group followed the directions and discussed the prosocial value of EE.
- No significant difference was seen between the control and experiment group after the classroom intervention.

R2: Does a Prosocial Classroom Intervention Increase Prosocial Stereotypes about EE?
- Scores for the video creation experience (confidence, importance, involvement, and interest) were all significantly above the medium point of 3 (p < 0.001).
- No significant difference was seen between the control and experiment group after the classroom intervention.

Discussion
1) Prosocial stereotypes about EE showed a significant indirect effect on persistence intentions when mediated through the experience of interest (agency was not significant).
2) No difference was seen in field stereotypes after intervention. It is suspected that:
   - the instructions weren’t clear. Of the 36 that did mention prosocial value, they only did so in passing and not as the main part of their video.