Relationships Between Student Motivation Toward Future Goals and Their Persistence in Engineering

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232 Wisenbaker

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Dr. Lisa Benson is a professor of engineering and science education at Clemson University, and the editor of the *Journal of Engineering Education*. Her research focuses on the interactions between student motivation and their learning experiences. Her projects focus on student perceptions, beliefs and attitudes toward becoming engineers and scientists, development of problem-solving skills, self-regulated learning and epistemic beliefs. Other projects in the Benson group involve student-centered instruction, engineering in secondary science and mathematics classrooms, and assessing global competencies of engineering students. She earned a B.S. in bioengineering from the University of Vermont, and M.S. and Ph.D. in bioengineering from Clemson University.

ABSTRACT: Research on achievement motivation that takes into account students' time-oriented motivation, for example how their motivation toward goals in the future affects their choices about academic tasks in the present, can provide insight into connections between student motivation and their academic choices. The research I will present focuses on answering the question, "What are the interactions between student motivation and their persistence in engineering majors?" I will present data collected through the Motivation and Attitudes in Engineering (MAE) survey and the current majors of the students who completed the MAE survey as first-year engineering students three years ago. The MAE survey was developed to assess undergraduate engineering students' time-oriented motivations and how those motivations relate to their perceptions of metacognition and problem-solving. Constructs within the survey include goal orientation (performance approach, mastery approach and work avoid), expectancy (beliefs about succeeding at a task), and future time perspective (perceptions of the future, perceived instrumentality of present tasks and perceived effects of the future on present tasks). A multiple logistic regression model of MAE factor scores as predictors of whether or not a student would remain in an engineering major revealed that a mastery approach was negatively correlated with persistence in an engineering major, and high expectancy and positive perceptions of the future were positively correlated with a student's persistence in engineering. These findings provide evidence for researchers and educators who seek to attract and keep students in engineering majors who might otherwise be inclined to leave, namely students whose goal is to master the material, who question their likelihood to succeed in an engineering major or who do not have clear, positive perceptions of what their future in engineering will be.