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Engineering Children's Literature: Development of an engineering storybook for young children

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Brianna Dorie is a Ph.D student in Engineering Education at Purdue University. She previously received her M.S. in environmental engineering from the University of Arizona, and her B.S. in civil engineering from the University of Portland. For the past three years, Brianna has coordinated the K-5 outreach program through the Women in Engineering Program (WIEP) at Purdue.

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Monica E. Cardella is an Assistant Professor of Engineering Education and is the Co-Director of Assessment Research for the Institute for P-12 Engineering Research and Learning (INSPIRE) at Purdue University. Dr. Cardella earned a B.Sc. in Mathematics from the University of Puget Sound and an M.S. and Ph.D. in Industrial Engineering at the University of Washington. At the University of Washington she worked with the Center for Engineering Learning and Teaching (CELT) and the LIFE Center (Learning in Informal and Formal Environments). She was a CASEE Postdoctoral Engineering Education Researcher at the Center for Design Research at Stanford before beginning her appointment at Purdue. Her research interests include: learning in informal and out-of-school time settings, pre-college engineering education, design thinking, mathematical thinking, and assessment research. She is also conducting a "longitudinal research study" with her two young children who love to read books.

Engineering Children's Literature: Development of an engineering storybook for young children

While the notions of doctor, teacher and firefighter are ubiquitous in young literature, there is a lack of engagement about engineering (Holbrook et al., 2008). Picture books are a compelling medium for introducing concepts to children at a young age. Story books have the ability to present new information, increase stimulation of the imagination, and deliver messages both moral and social. In a school setting, story books have been shown to impact kindergartener's mathematical achievement when produced in tandem with a mathematics unit (Keat & Wilburne, 2009). However, there have been little to no studies regarding the impact of engineering literature (Holbrook et al., 2008). This could potentially be affected by the lack of children's books on the subject.

Distributing correct messages about engineering to a younger age group may assist in developing a stronger perception of engineering further down the line (NAE, 2002). A marketing analysis of engineering showed that targeted audiences weren't familiar with engineering (NAE, 2008). They piloted several different taglines to market engineering, such as "engineers shape our world" and "engineers breathe life into ideas and make them reality". However, some of the taglines were found to be more relatable to targeted audiences, such as women and underrepresented minorities, than others. Appropriate informal messages for young children include: what engineering is, what an engineer does (in terms of occupation), many types of engineering exist, engineering is all around, and anyone can be an engineer with the proper training (diversity).

This poster will illuminate the process of writing a children's book on engineering. By increasing the number of available children's books on engineering, with age appropriate and approved messages, it may increase the early positive exposure of engineers and/or engineering to young children.

References

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