

GIFTS: It's Time to Start with 'A Safety Moment'

Prof. John I Messner, Pennsylvania State University

Dr. Messner is the Director of the Computer Integrated Construction (CIC) Research Program at Penn State and a Professor of Architectural Engineering. He specializes in Building Information Modeling (BIM), digital twin, and immersive technology research.

Dr. Ryan Solnosky, Pennsylvania State University

Ryan Solnosky is an Associate Teaching Professor in the Department of Architectural Engineering at The Pennsylvania State University at University Park. Dr. Solnosky has taught courses for Architectural Engineering, Civil Engineering, and Pre-Major Freshman.

It's Time to start with 'A Safety Moment'

Ryan Solnosky¹, PhD, PE and John Messner², PhD

¹rls5008@psu.edu: Associate Teaching Professor, Department of Architectural Engineering, Pennsylvania State University, University Park, PA 16802, USA

²jim101@psu.edu: Professor, Department of Architectural Engineering, Pennsylvania State University, University Park, PA 16802, USA

Abstract: A Professional Engineer (PE) is to hold paramount the health and safety of the public. This raises the question regarding how we develop students to both be aware of safe practices, but more importantly, gain a desire for life-long learning about health and safety topics and building a safety culture. To achieve this, we have been emphasizing the importance of safety, every class, every meeting, through a brief **safety moment** in several courses within our department. Each class starts with a short moment in the form of an online game such as a Kahoot!, slides, videos, or even what-if scenarios. Our application domain is in architectural engineering, but the context can be expanded for any engineering domain, including both large and small classes. This paper will describe how we select topics, deliver safety moments, and students' opinions from student evaluation comments.

Keywords: Safety Moment, Code of Ethics, Wellbeing, Public Health and Safety, Engagement

Introduction

According to the National Society of Professional Engineers (NSPE), a Professional Engineer (PE) is to hold paramount the health and safety of the public with respect to all aspects of what they do. Engineers by nature design, create, and construct solutions for the human population. Providing a functional project or product is critical; yet designs also need to be safe. An example of safe design thinking is the Samsung Note 7 issue from 2016 that worked until it was taken on flights and then started to catch fire. Scenarios such as this, raise the question regarding how we develop students to both be aware of safe practices, but more importantly, gain a desire for life-long learning about health and safety topics. Within our curriculum, we have noticed a gap in safety thinking when going on site tours, as well as, a general safe mindset culture. It seems that students tend to not review pre-selected safety briefs, safety warnings, or even boiler plate safety statements on syllabi.

Over the last four years several faculty members adopted a more upfront and proactive teaching moment to address these concerns by emphasizing the importance of safety, in every class and meeting, through a Safety Moment. To date, we have implemented safety moments in five different classes within Architectural Engineering (AE), from our second-year introductory courses, to a third-year construction course, a fourth-year discipline specific design course, and a fifth-year. These safety moments demonstrate our commitment to safety and the importance to always keeping safety as a priority.

Background

The idea of a safety moment is not new. The concept stems from OSHA's Toolbox talks, as well as safety leadership initiatives [1]. Simply put a safety moment focuses attention about a particular risk, task, scenario and how to handle it [2]. In industry, safety moments are short and concise single topics typically lasting 3-5 minutes held at the beginning of a meeting or event to promote a safety-first mentality [1,2]. Across the engineering community safety moments are adapting to promote wellbeing; representative companies include [3]: Caterpillar, General Motors, Pepsi Cola Co., Clark Construction, and many more. While many may think of safety as personal safety, it is broader. The NSPE Code of Ethics lists safety within the following sections [4]: Cannon 1, Rules of Practice 2a and 3a-c, and lastly, Professional Obligations 2a-e. From a building design perspective, many codes and standards further define "safe" solution methods and procedures that protect occupant health and safety [5].

For teaching safety, in many engineering programs, there has been varying levels of delivery [6,7]. In some programs there are formal 3 credit courses on safety, for others there are lab safety tutorials that can be hands-on or professional ethics talks / case studies [8]. Less impactful methods could be written safety statements or when students go on a site tour, where a just-in-time safety brief is done. Most approaches do not promote an active safety culture or connect safety more broadly to student's careers and personal self-interests [9]. To some degree, any safety exposure is good exposure, but there remains a need to grow students' mindsets on safe practices and approaches to situations. Our aim with our consistent safety moment delivery is to be more encompassing and engaging so that safety is always in their mind in some form.

Approach to Delivering Safety Moments

We start every class with 'it's time to start with a safety moment' (students are audibly joining our announcement by the time we get to 'safety moment'). The safety moment is a short five-minute maximum engaging moment delivered in one of multiple formats, including presentations, a discussion, videos, or interactive content. Sometimes we select topics that are relevant to the class session, e.g., cement burns when discussing concrete or crane safety when discussing construction site planning. But other times we select general safety, health or wellbeing topics of importance to the students. Examples include CPR, active shooter safety, bicycle safety, drowsy driving, and stress management, to name a few. Figure 1 includes sample slides from two safety moments. The top slides are focused on a building industry related topic, ladder safety, while the bottom slides are a more personal topic, cooking safety and fire hazards associated with cooking on a stove, a task performed by many students in their apartments. More recently, we have started to have students provide safety moments in our upper-level course so that they not only receive, but they practice selecting topics and providing safety moments.

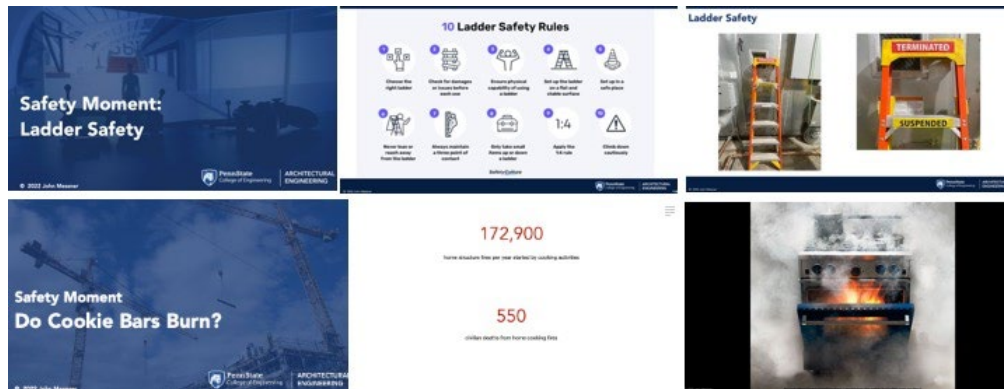


Figure 1: Example of Safety Moment Slides

The scope and scale of the examples can be broad or narrow; be focused on what to do or what not to do; how to mitigate risks; or how to design for safety. For example, in the fourth-year design course, safety topics focus on preventing design failures, safety factors, or the value of system redundancy.

Observations and Conclusions

We have found that implementing safety moments in the classroom has made a positive impact in several ways. First, it emphasizes the importance of a safety culture. It is also effective method for engaging the students early in the class, and helping students transition to the class environment. More importantly, it shows that we value safety as a topic, that we value the safety of our students and community. Another observation was that student feedback has been very positive. We frequently receive positive open-ended comments in our student ratings of teaching effectiveness (SRTes). Here, students' comments include statements that they enjoy the safety moments and find them engaging and valuable. Even when safety moments were not directly related to class, student interest / engagement was approximately the same.

We feel that part of our success is in the consistency of delivery. We have a safety moment at the beginning of every class. As a faculty member, to develop a pre-planned high-quality, engaging safety moment for every class can take some time. One thing we have noticed is that not every safety moment needs to be a detailed activity. Instead, sometimes we simply provide brief safety announcements, reminders, or brief stories. For example, the safety moment can be as simple as reminding students of the importance of getting an annual flu shot or the importance of wearing a bicycle helmet. While developing a brief presentation for each could be beneficial, it is more important to ensure that there are consistent safety moments. This emphasizes the importance of safety and a safety culture. Our efforts have initiated additional unexpected positive outcomes within our department. We have been able to expand this concept to our departmental faculty meetings, and some additional meetings within the department. This has started to emphasize a departmental safety culture.

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