

# Innovation T-Ball: Everybody Wins!!

Stephanie Cutler, Thomas Litzinger, Sarah Zappe, and Michael Alley  
The Leonhard Center for the Enhancement of Engineering Education  
The Pennsylvania State University  
University Park, PA, USA  
slc5822@engr.psu.edu

**Abstract**— As we all come together at FIE to explore advancements in engineering education, many attendees may ask themselves, “How could I use this in my classroom?” At Penn State, the Leonhard Center for the Enhancement of Engineering Education has been working with faculty for the last 25 years to help answer that exact question. This special session will offer FIE participants the opportunity to bring their new ideas together to collaborate with other participants, and members of the Leonhard Center, to develop specific strategies for how they can take that new idea (innovation) and turn it into classroom practice. The structure of this session will mimic a t-ball game to help exemplify the Leonhard Center’s core values of exuberance and fun through learning while allowing participants to think about classroom practices from a different perspective.

**Keywords**—*innovation; faculty development; teaching practices*

## I. GOALS OF THE SESSION

For the past twenty-five years, the Leonhard Center for the Enhancement of Engineering Education has aided the Penn State College of Engineering in their pedagogical endeavors. One of the key ways we have enhanced engineering education over the years is by encouraging innovation in the classroom. We will draw upon our experience, and the collective experience of participants, to enable each participant to push their innovative education ideas to new levels.

The goals of this session are to:

- 1) Aid participants in moving innovative ideas forward by generating ways to overcome specific challenges, and
- 2) Encourage collaboration among participants to drive idea generation forward.

According to Rogers [1], “An innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (p. 11). Therefore, an innovative teaching practice can be thought of any teaching practice that is new to the instructor implementing it. The Leonhard Center works with faculty to ensure that their innovative practices are grounded in educational evidence. However, the innovative idea must come from the instructor so they are excited about implementing the practice in their classroom. We will use this philosophy in our session, where we will encourage the participants to bring their ideas about innovative practice to the session. Thus, some innovative practices brought by one

participant might already be in regular practice for another participant at the session. However, this will allow all of the participants to share their experience and ideas in a collaborative space to help each move their teaching forward.

Along these same lines, when faculty initially hear about a teaching innovation, they begin evaluating how the innovation could be used in their classroom. During this decision making process, some faculty may decide that the challenges to the actual implementation are greater than the benefit of using the innovation and decide not to implement [2]. This session will allow each participant to bring specific challenges to the forefront for discussion among supportive colleagues who will help generate new approaches to overcome these challenges or barriers. The Leonhard Center faculty have worked on a variety of projects that have offered them a wide-range of experiences overcoming the barriers many faculty face when implementing innovative practices in their classroom.

The audience for this session is primarily faculty members facing challenges to using innovative teaching practices. Additionally, any administrators or staff who are responsible for faculty development may be interested in seeing this demonstration of a team-based approach to present and talk about innovative teaching practices. This session is about pushing ideas forward and overcoming barriers, so anyone with ideas who is facing challenges is welcome to attend the session for new perspectives from supportive colleagues.

## II. JUSTIFICATION OF NOVELTY

This session taps participants’ familiarity with the sport of baseball to draw them into a new way of thinking about their teaching practices. The main activity of the session is analogous to a T-ball game. T-ball is an entry-level approach to baseball where players hit a ball off of a tee. The focus of T-ball is generally on the success of all players and much less on competition – so EVERYONE WINS. The less competitive, more collaborative environment was attractive to the facilitators because we want all participants to work together to overcome challenges and move forward new ideas as a team.

### III. EXPLANATION OF INTERACTION

Participants will be asked to interact in multiple ways. They will be asked to constantly interact with their “team” of fellow participants during the gameplay to identify challenges and to generate strategies for overcoming their challenges. Participants will also interact with each of the facilitators whose expertise will help to guide discussions and generate new ideas. One of the goals of the session to encourage collaboration, share ideas, and general networking to add to the value of the session for each participant.

### IV. DESCRIPTION OF SESSION CONTENT

Many faculty struggle to integrate new practices into their classroom [3,4]. Over the past 25 years, the Leonhard Center has worked with faculty to aid this process [5,6]. This special session will highlight the expertise developed by the Leonhard Center while allowing participants to actively develop strategies for overcoming a variety of challenges to innovation in a fun and unique way.

This session is structured around a T-ball game and will begin with each “player” (participant) writing down an innovation and a challenge for that innovation. Players will then be grouped into teams of four to share their innovations and challenges. When the gameplay begins, each team will take a turn “at bat” where each team member will briefly pose their innovation and challenge to the “field” (other teams). The “pitcher” (facilitator) will direct the challenge to one of the “bases.” The “base” will then have the opportunity to think of a strategy for overcoming the challenge. The “base” team will announce their strategy to the pitcher who will determine if the at-bat team member may progress to that base or if the strategy is insufficient to avoid the “out” (inhibitor of innovation). If each of the four at-bat team members get on base, then the team will earn a “run.”

The “bases” will focus around a common area that creates challenges to innovative practice. First base will focus on gateway topics like gathering and synthesizing the information. Second base will focus on assessment and evaluation. Third base will focus on scaling and sustaining innovations. If a challenge does not fit into these topics, then each base will be able to propose a way to overcome it.

After gameplay, participants will reflect on the game experience and what they learned. There will be a brief overview by the Leonhard Center to offer additional strategies for hitting an innovation homerun.

### V. SESSION AGENDA

(00-05min) *Innovation T-ball: Everybody wins!* Introduction to the rules and inspirations for Innovation T-ball.

(05-10min) *Outlining Individual Innovation and Challenge.*

(10-15min) *Forming Teams and Sharing Innovation.*

(15-70min) *Gameplay.*

(70-80min) *Reflective Discussion and Leonhard Center Tips*

The outcomes from this session will be various new ideas for overcoming challenges to innovation for all participants to personally use and share with colleagues. The participants will work with each other to potentially create new networks for sharing ideas to help us all move forward. We hope each participant walks away with a helpful new perspective on their innovative idea and strategies for overcoming challenges in the future.

### REFERENCES

- [1] Rogers, E. *Diffusion of Innovation* (4<sup>th</sup> Ed.). The Free Press, New York, NY, 1995.
- [2] Henderson, C., M. Dancy, & M. Niewiadomska-Bugaj. “The use of research-based instructional strategies in introductory physics: Where do faculty leave the innovation-decision process?” *Physical Review Special Topics – Physics Education Research*, 8(2), 2012.
- [3] C. Wieman & S. Gilbert. “Taking a scientific approach to science education, part II – Changing teaching.” *Microbe*, 10, p. 203-207 2015.
- [4] S. Cutler, M. Borrego, M. Prince, C. Henderson, J. Froyd. “A comparison of electrical, computer, and chemical engineering faculty’s progressions through the innovation-decision process.” *IEEE/ASEE Frontiers in Education Conference (FIE)*, Seattle, WA, 2012.
- [5] The Pennsylvania State University. “The Leonhard Center: About the Leonhard Center.” Internet: <http://www.engr.psu.edu/leonhardcenter/leonhardcenter/>, 2008 [Feb 3, 2016].
- [6] T. Litzinger, R. Pangborn, D. Wormley. “15 Years of Engineering Education Reform: Lessons Learned and Future Challenges” *ASEE Annual Conference*, Chicago, IL, 2006.