

What do People, Prototyping, Problem Solving, and Play-Doh have in Common? Team-based Learning!

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Team-based Learning (TBL) is based on the concept of “flipping the classroom” where students are held accountable for preparation prior to attendance and class time is used to engage in discussions and application activities that focus on integration of theory with experiential learning. TBL is facilitated in three distinct learning phases: preparation, readiness assurance, and application. The workshop uses the TBL structure to teach a prototyping exercise using Play-Doh to encourage creative problem-solving in an entrepreneurship course. The workshop teaches the TBL method, provides participants with a turnkey prototyping activity, as well as shares TBL resources and materials.

INTRODUCTION

In the first phase of TBL, students prepare by reading, watching lectures, or conducting research. In this workshop, participants read a handout on prototyping at the beginning of the session. In the second phase, students' readiness to apply theories is assessed through readiness assurance tests, individually (iRAT) and as a team (tRAT). Team membership is assigned using “resource wealth distribution” to create balanced teams. The tRAT can be completed using a “scratch and win” card, or the immediate feedback assessment technique (IF-AT). This ensures that all team members have the foundational knowledge to apply the theoretical concepts in stage three. The instructor uses the results to determine whether there are any deficiencies in the students' understanding of the material and make corrections before moving on to the next phase. For this workshop, participants complete the iRAT on paper and the tRAT using an IF-AT card. In phase three, students apply the concepts in a hands-on activity involving problem solving, discussion, case analysis, etc. Activities are designed around the structure of “4Ss” (significant problem, same problem, specific choice, and simultaneous reporting). For this workshop participants create a prototype using Play-Doh based on applying the concepts in the handout.

The last portion of the workshop includes time to debrief on the prototyping activity, and discussion of the use of TBL to support student accountability, team and collaborative activities, and hands-on and experiential learning. The entire TBL exercise on prototyping demonstrated in this workshop can be used as is in potentially any entrepreneurship course. Participants in the workshop receive all resources for the activity. Faculty just need to purchase their own Play-Doh, and possibly the IF-AT cards. Additionally, the exercise is easily adaptable to other entrepreneurship topics.

IMPLICATIONS

Recent interest in making learning more active and experiential has led to the method called “flipping the classroom” where students are given materials that traditionally were provided in class such as lecture videos, tutorials, and readings, and they spend their time in the classroom participating in activities that were previously assigned as homework. Instructors in this model provide practice, guidance, and feedback in problem solving (Demetry, 2010; Asef-Vaziri, 2015) within the bounds of the classroom walls. Bishop and Verleger (2013) provide a theoretical framework of the flipped classroom where the core concept is that the time that students have with the instructor is too valuable to use for only didactic delivery of materials, and should be spent with the instructor guiding and directing active engagement in learning.

One challenge that arises with this shift in responsibility for learning that is placed on the students in the flipped classroom is that of accountability. Students are expected to come to class prepared, but if they are not held accountable for that preparation, they will not have the benefit of learning that can happen in the classroom when everyone is prepared. One solution for this challenge is Team-based Learning. The concept of Team-based Learning originated in the business school with Larry Michaelsen at the University of Oklahoma (Michaelsen, Knight, & Fink, 2002). Team-based learning employs carefully assembled and consistent teams where visibility for preparation is clear. The bulk of class time is spent on application-based, hands-on learning activities where students receive frequent and immediate instructor input and feedback (Michaelsen, 2002). Team-based Learning involves more than just incorporating a group project or a team presentation; it encourages positive interdependence and individual accountability (Cooper, 1990). Students demonstrate their readiness for learning both individually and as a team, receive immediate feedback, and then spend the rest of the time in class applying the foundational knowledge in team activities (Michaelsen & Sweet, 2008). The true power of the team is derived from the cohesiveness that is developed through the in class activities (Michaelsen, 2002). Team-based Learning has been implemented in a wide range of business and non-business courses and non-academic settings (Michaelsen et al., 2002; Haidet, Kubitz & McCormack, 2014).

When students actively focus on decision making and improve problem solving skills, they achieve a more in depth understanding of the course concepts, and are more likely to continue learning about the subject matter after the course ends. In the entrepreneurship classroom, this is especially important since entrepreneurs operate in an ambiguous environment and must solve problems relating to new and creative ideas (e.g. innovation). The skills that students learn by engaging in TBL activities with interdependent team members also prepares them well for engaging in entrepreneurial ventures. Yes, the individual entrepreneur is called upon to contribute greatly to a venture, and the individual preparation portion of TBL practices this skill. However, there is also a more robust view of entrepreneurship where ventures are facilitated in teams, or networks, that share risks and resources (Freeman, 1984). Using TBL in an entrepreneurship classroom teaches some of the skills necessary for this type of entrepreneurship.

WORKSHOP AGENDA/TIMELINE

The first part of the workshop is allotted for participants to engage in a complete Team-based Learning exercise. An introduction to the workshop is provided and participants are divided into teams based on the principle of resource wealth distribution, ensuring diverse and balanced teams. Participants read a one page handout on a specific aspect of prototyping, and then complete readiness assurance activities as follows: 1) participants complete an individual readiness assurance test (iRAT), and 2) using the exact same questions, but working with their team, participants take a second readiness assurance test (tRAT) using a “scratch and win” type answer card.

Teams then engage in a Team-based Learning experiential exercise using Play-Doh to create a prototype. Once prototypes are completed, teams participate in a gallery display of prototypes and vote on the prototype that best represents the information from the handout. In the second part of the workshop, the presenters do a deeper dive into the details of Team-based Learning, including what it is, why it should be used, how it can be used (as “plug and play” or “turnkey”), how learning outcomes can be measured, etc.

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APPENDIX

TBL Prototyping Quiz

Choose the 1 best answer to each of the following questions based on the article.

1. The argument that innovators are experimenters is not a new one.
 - a) True
 - b) False
2. Which experimentation technique is best for generating disruptive insights?
 - a) Trying out old experiences
 - b) Taking things apart
 - c) Testing through pilots and prototypes
 - d) None of the above
3. Which of the following is not an approach to experimentation?
 - a) Trying out new experiences
 - b) Taking things apart
 - c) Testing through pilots and prototypes
 - d) Putting things together
4. Many Entrepreneurs credit this for their knowledge and success:
 - a) Trial and error
 - b) Luck
 - c) Their moms
 - d) Sweat equity
5. Which form of experimentation is one of the best ways to refine a product or business model?
 - a) Trying out new experiences
 - b) Testing through pilots and prototypes
 - c) Taking things apart
 - d) None of the above

TBL Prototyping Activity

In your assigned groups, take 15 minutes to design a prototype for a home appliance/product using the Play-Doh provided. After the prototypes are completed there will be a “gallery” exercise where participants will observe and evaluate each team’s prototype. Pick one member from your team to be the spokesperson who can answer any questions from the participants about the prototypes. A vote will be taken at the end of the gallery time to determine a crowd favorite prototype. Additionally, the judges (i.e. work shop facilitators) will rate all prototypes on three criteria (innovativeness, functionality, and aesthetics), determining an official winner.

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