

# Project Based Learning

Gautam R. Karve

Assistant Professor, School of Engineering

Avantika University, Ujjain

Induction Training Programme,

CREATES, IISER Bhopal, 18th -29th June 2018

# What does Project Based Learning (PBL) look like?



- (Ref: <http://www.shsu.edu/centers/project-based-learning/examples.html> )
- Wing Project:  
<https://www.youtube.com/watch?v=HW7eq155QJE>  
<https://www.youtube.com/watch?v=iSmkjhCLgEw>  
<https://youtu.be/iSmkjhCLgEw>

## Five main Features of PBL

- Start with Driving Questions/Problem to be solved
- Situated Inquiry/ Real world application
- Collaborations
- Using Technology tools to support learning
- Creating Artifacts

**Ref:** Krajcik and Blumenfeld, Chap. 19, *The Cambridge Handbook of the Learning Sciences*. New York: Cambridge University Press.

# Extract from the book:

## *The Cambridge Handbook of the Learning Sciences*

Learning Environments that are project based have five key features (Blumenfeld et al. 1991; Krajcik, et al., 1994, Krajcik, Czerniak, & Berger, 2002):

1. They start with a driving question, a problem to be solved.
2. Students explore the driving question by participating in authentic, situated inquiry- processes of problem solving that are central to expert performance in the discipline. As students explore the driving question, they learn and apply important ideas in the discipline.
3. Students, teachers and community members engage in collaborative activities to find solutions to the driving question. This mirrors the complex social situation of expert problem solving.
4. While engaged in inquiry process, students are scaffolded with learning technologies that help them participate in activities normally beyond their ability.
5. Students create a set of tangible products that address the driving question. These are shared artifacts, publicly accessible external representations of the class's learning.

# PBL is working in our Induction Training Programme participant presentations too

- Driving questions: Understanding of these emerging learning tools will help our Univ.
- Our projects have a real world connect: Presentations available for anyone
- We are collaborating: Presentation exercise
- Creating Artifacts: Our PPT slides and our presentation is an artifact

## Some Universities using PBL

- Olin College of Engineering
- Sam Houston State University
- Buck Institute for Education

And many more...

# PBL creates Artifacts and Answers Questions



Self-defense Armor for Full-force Impact, Scenario-based Self-Defense Training



Understanding Microbial Community Dynamics and Function

**Ref:** <http://www.olin.edu/research-impact/sample-projects/>

# PBL for Our Universities

- Better suited for Engineering Education
- May not be suitable for all subjects
- Existing Faculty/Management need to be oriented
- Homework on part of teacher required



# Other Resources

[https://en.wikipedia.org/wiki/Project-based\\_learning](https://en.wikipedia.org/wiki/Project-based_learning)

<https://www.intel.com/content/www/us/en/education/k12/teach-elements.html>

<https://www.edutopia.org/project-based-learning>

Sawyer, R. K. (2006) The Cambridge Handbook of the Learning Sciences. New York: Cambridge University Press.

<https://www.youtube.com/embed/HrXNjVkp-wU?autoplay=1>

*Thank you*

