

Beyond Curiosity: Using PBL Strategies to Promote Deeper Thinking and Understanding

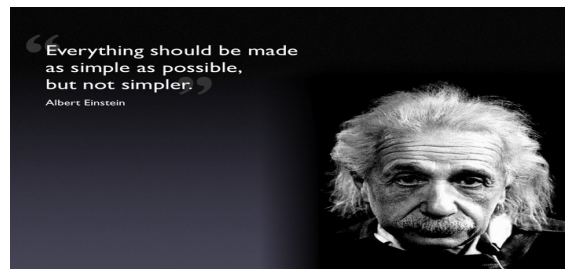
Wouldn't it be awesome if you could create positive energy and positive awareness with purpose and intent rather than just wishing or hoping for them?

Overall Outcomes of Session:

1. Gain a better understanding of how PBL strategies recognize students' inherent drive to learn
2. Increase positive relationships within our professional network through an informal setting
3. Create an opportunity to see ourselves as learners
4. Generate excitement and explore intentional practice leading students to in-depth exploration of authentic and important topics

Basic Agenda:

- 10 minutes - Paper Mingle
 - Brief introductions around the circle
 - Review the outcomes of session
 - Explain activity
- 25-30 minutes - Consensus agenda
- 5 minutes - Closing remarks
 - How can we apply PBL strategies to our library instruction that will encourage deeper thinking?



“There is no way to figure something out without thinking. There is no way to learn how to figure something out without learning how to think it through.” - Unknown Author

Angela Finn

afinn@ravenscroft.org

Today's Session Notes

https://docs.google.com/document/d/1HCt7NC3Cf4ICJMoOnW7FQQD5xbXbW0OLcc_aFK3kkucg/edit?usp=sharing

Paper Mingle Activity

- *Discuss a time when you have learned something deeply.*

- Describe a time when you solved a problem in a way that helped you learn something.
- What makes you curious?

What do you think needs to be present in order to learn and understand something?

Participants responses:

- Goals, directions, basic plan, guidelines, expectations (rubrics, timelines, dates)
- Real/authentic problem to solve
- Communication/conversation
- Curiosity and desire to learn/motivation
- Prior/background knowledge
- Connections/self and real world
- Positive learning environment - open discussions, brainstorming
- Real world connections
- Access to places/information/resources
- Basic needs met
- Openmindedness
- Management of technology and resources
- Networking
- Know key vocabulary
- Trial and error platform - willingness to fail
- Shared positive learning environment, safe environment
- Options
- Time to process
- Accountability
- Appropriate levels of challenge
- Individual learning needs met (styles, etc.)

Students must be active participants. Ask yourself:

- Do you let students plan projects?
- Do the students look at outcomes?
- Do students get a say in the products and investigations?

To generate student's deeper thinking:

- Set the stage for inquiry
- Make the world safe for thinking.
 - RQ technique
- Invite feedback.
 - "I like..." - strengths
 - "I wonder..." - weaknesses
 - "I have..." - ideas, enhancements
- Think about thinking.
- Think as experts do.
- Watch for spirals.

The Role of Questions

Thinking is driven by questions, not answers.

- Questions define tasks, express problems and delineate issues.
- Answers signal full stop in thought.
- Test students by asking them to list questions and explain their significance.

Students need questions to turn on their intellectual engines and they need to generate questions from our questions to get their thinking to go somewhere.

- The questions students ask determine where their thinking goes.
- Questions of purpose, information, interpretation, assumption, implication, point of view, relevance, accuracy, precision, consistency, and logic all drive thought under the surface.

Teachers need to be seriously engaged in thinking through or rethinking through their own subjects.

- No questions = no understanding.

PBL Best Practices

Significant Content

- Project focuses on teaching students important knowledge and skills derived from standards and key concepts at the heart of academic subject areas.

In-Depth Inquiry

- Inquiry is sustained and academically rigorous; students pose questions, gather and interpret data, ask further questions, and develop and evaluate solution or build evidence for answers.

Public Audience

- Students present or exhibit work to an audience that includes other people outside the school.
- Students present culminating products and defend them in detail and depth (explain reasoning.)

Driving Question

- DQ captures the main focus.
- DQ is open-ended, allowing students to develop more than one reasonable complex answer.
- DQ is understandable and inspiring.
- To answer the DQ, students will need to gain intended knowledge, skills and understanding.

Need to Know (Entry Event)

- Project motivates students to learn new content knowledge or gain skills because they genuinely find the topic/driving question/tasks to relevant and meaningful.
- Project powerfully engages students, both emotionally and intellectually.

Deeper Learning Competencies

Master core academic content - Students develop and draw from a baseline understanding of knowledge in an academic discipline and are able to transfer knowledge to other situations.

- Deeper learning activities require learners to draw information from knowledge they have acquired and then do something meaningful with it.
- To process information efficiently in non-routine ways, deeper learning activities should be structured to give students multiple opportunities, over time, to apply knowledge in a range of challenging tasks.

Think critically and solve complex problems - Students apply tools and techniques gleaned from core subjects to formulate and solve problems. These tools include data analysis, statistical reasoning, and scientific inquiry as well as creativity, nonlinear thinking, and persistence.

Work collaboratively - Students cooperate to identify and create solutions to academic, social, vocational, and personal challenges.

Communicate effectively - Students clearly organize their data, findings, and thoughts.

- Communication requires a broader range of conscious learning behaviors.
- Learners accept responsibility for expending the time and energy necessary to think about a task, select the proper learning strategies, and judge how well those strategies are working.
- When encountering difficulty or setbacks, deeper learning requires that learners diagnose the type of difficulty they are facing, select appropriate strategies to resolve the difficulty, and continue forward toward their learning goal.

Learn how to learn - Students monitor and direct their own learning.

- Students engagement in learning makes use of cognitive, metacognitive, and self-regulatory strategies because they care about learning and are purposeful in doing what is required to succeed.

Develop academic mindsets - Students develop positive attitudes and beliefs about themselves as learners. Students are committed to seeing work through to completion, meeting their goals, and doing quality work, and thus search for solutions to overcome obstacles.

Librarian = Facilitator of Learning/Problem Solving

Constructs a driving/essential question with students

Facilitates process for generating student questions

Facilitates use and evaluation of resources

Provides guidance in response to student needs

Helps students apply learning to tasks

Provides additional experiences to generate new knowledge and questions

Facilitates student reflection

Participants Responses:

- Space and time
- Contact with teachers and students
- Resources
- Collaboration with all stakeholders
- Conversations (crucial ones!)
- Flexibility
- Active listener
- Ask probing questions
- Provide good feedback
- Spark curiosity
- Don't take side outside contacts

Librarian = Manager of Student Learning/Process

Share project goals with students, refining projects with students

Use problem solving tools

- A know/need-to-know list - understanding parameters of problem
- Learning log list - documenting progress, frustrations, breakthroughs
- Planning, investigation and product briefs - encouraging persistence in research

Use checkpoints and milestones

- Informal briefings
- Random interviews
- Survey individuals
- Examine progress logs
- "Sit in" with groups

Plan for evaluations and reflection

- Culminating evaluation (What skills were learned? What needs to be practiced? Where can improvements be made?)
- Whole class debrief, fishbowl, surveys, self-evaluations

Participants responses:

- Creates space for learning
- Keep students on task (behavior)
- Collection development
- Time/scheduling
- Funds for needs
- Safe Environment
- Know when to step in for guidance
- Understand the big picture
- Constructs breakdown of tasks
- Problem solver or finding of alternative routes
- Monitors group or individual needs versus class
- Availability of tools to stakeholders for problem-solving
- Content
- Organizational skills

Further Reading:

[Buck Institute Project Based Learning Resources](#)

[Building Blocks of Project Based Learning](#)

[Critical Thinking Consortium: Tools for Thought](#)

[Einstein's Secret to Amazing Problem Solving \(and 10 Specific Ways You Can Use It\)](#)

[Marshmallow Challenge](#)

[Project Based Learning Explained](#)

[National Center for Teaching Thinking](#)

[Project Zero: Visible Thinking](#)

Sources

- "Deeper Learning Competencies." *Deeper Learning Defined* (2013). William and Flora Hewlett Foundation, Apr. 2013. Web. 17 Feb. 2015.
<http://www.hewlett.org/uploads/documents/Deeper_Learning_Defined_April_2013.pdf>
- Jensen, Eric, and Eric Jensen. *Brain-based Learning: The New Paradigm of Teaching*. Thousand Oaks, CA.: Corwin, 2008. Print.
- Markham, Thom, John Larmer, and Jason Louis. Ravitz. *Project Based Learning Handbook: A Guide to Standards-focused Project Based Learning for Middle and High School Teachers*. Novato, CA: Buck Institute for Education, 2003. Print.
- McKenzie, Jamieson A. *Learning to Question - to Wonder - to Learn*. Bellingham, WA: FNO, 2005. Print.
- Rothstein, Dan, and Luz Santana. *Make Just One Change: Teach Students to Ask Their Own Questions*. Cambridge, MA: Harvard Education, 2011. Print.