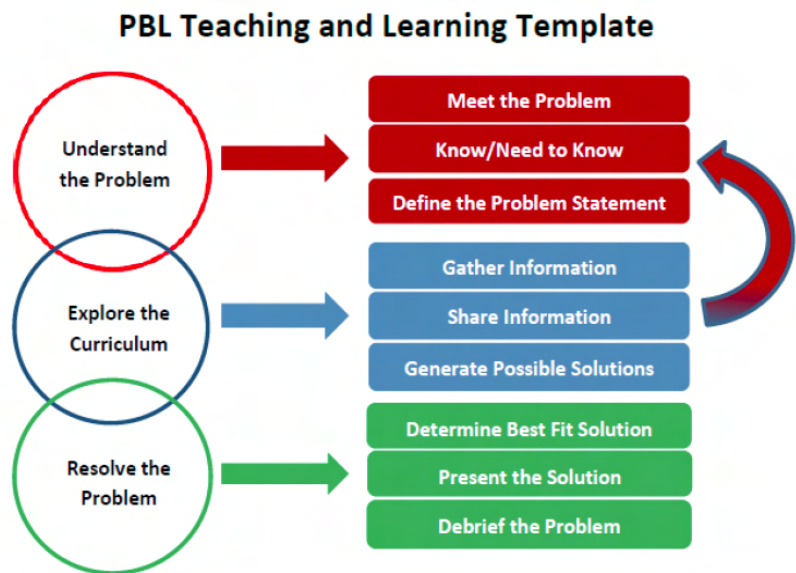


INTRODUCTION

1. Definition: A systematic teaching method that engages students in learning essential knowledge and life-enhancing skills through an extended, student-influenced inquiry process structured around complex, authentic questions and carefully designed products and tasks.
2. Characteristics of project-based learning:
 - Students making decisions within a framework
 - A problem or challenge to be solved;
 - Students designing the process for reaching a solution
 - Students gathering and managing information
 - Continuous evaluation
 - Students regularly reflecting on the process
 - A final product to be evaluated for quality
 - An atmosphere that tolerates error and change



A CLOSER LOOK

The key elements and processes:

1. Learning objectives: Learning objectives are laid out in the rubric, and students should be able to tell which ones they're covering in any given project.
2. Peer review: Honest feedback and ongoing adjustments help projects to continually improve. Both students and instructors participate in a peer review protocol.
3. Entry event: Instructors introduce each project with an entry event to hook the students and get them engaged in the content, to provide an exemplar of the instructors' expectations, and to introduce key vocabulary.
4. "Need-to-know" list: Keywords in the entry event should prompt students to identify new concepts they'll need to learn and help them make connections to related content they already know.
5. Rubric: Instructors carefully design rubrics to define the desired learning outcomes for a project, including which learning objectives students are expected to master and how performance will be measured for each outcome.
6. Group contract: Students use group contracts to document expectations for each team member to enhance individual accountability. Each project team writes a contract that clearly defines everyone's roles, responsibilities, and contributions to the project, and students are held to it.
7. Research and collaboration: It is up to the students to work together to figure out what their final product is going to be and how they will acquire the knowledge they need to complete it.
8. Assessment and adjustment: Throughout the process, instructors and students give and receive feedback and make adjustments accordingly.
9. Presentations: Some form of presentations are the common element to project-based projects.
10. Final assessment: Because instructors take pains to observe student progress throughout the process, the final assessments tend to be relatively easy. The work up front on creating a clearly defined rubric that identifies multiple learning outcomes and criteria also helps considerably.

ADDITIONAL RESOURCES

1. Criteria for effective assessment in project-based learning:
 - When designing, use R.A.F.T. as a way to ensure an authentic culminating product: Students are given a topic (T); they choose a role (R) that they will take on individually and as a group, such as marketer, author, blogger, campaign manager, etc.; and they choose an Audience (A) obviously related to the role. Students also choose the format (F) that they will use, such as webpage, press release, letter, museum exhibit, or podcast.
 - Target select power objectives.
 - Select 21st Century skills to teach and assess.
 - Formative assess only for purpose of revision and improvement.
2. Types of assessment for project-based learning:
 - Written examinations
 - Practical examinations
 - Concept maps
 - Peer assessment
 - Self-assessment
 - Instructor assessment
 - Oral presentations
 - Reports
 - Student portfolios
3. Top ten tips for assessing project-based learning:
 - Keep it real with authentic products.
 - Don't overlook soft skills.
 - Learn from big thinkers.
 - Use formative strategies to keep projects on track.
 - Gather Feedback fast.
 - Focus on teamwork.
 - Track progress with digital tools.
 - Grow your audience.
 - Do-It-Yourself professional development.
 - Assess better together.



EXAMPLE

Here is a case in an educational technology course required of pre-service teachers. Students in the course learned through stages of entry, exploration, expansion, evaluation and explanation to formulate a response to an educational problem with a technology-based teaching unit. Instructionally, students demonstrated their mastery of several technology skills and information literacy skills by producing and presenting a complete WebQuest designed for a specific learning need.

<http://faculty.education.ufl.edu/cathycavanaugh/docs/PBL2040.pdf>

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