Critical Discussions

Does project based learning teach critical thinking?

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Critical thinking is a foundational skill for 21st Century success, a reality recognized by P21 adherents and educators everywhere. But how do we help students learn to do it? And what is critical thinking, anyway? Is Project Based Learning (PBL) really the best way to help students become critical thinkers?

At the Buck Institute for Education (BIE), we believe PBL is a powerful pedagogy that helps students to learn how to be critical thinkers – to make thoughtful decisions and exercise reasoned judgments. For this to occur, projects have to be planned around topics that lend themselves to thoughtful consideration, and students have to be provided with the tasks, supports and scaffolds needed to develop critical thinking tools and strategies.

BIE’s understanding of critical thinking is influenced greatly by the ideas of Roland Case and The Critical Thinking Consortium. Case notes that critical thinking is not a different type of thought, a handspring of the mind that vaults above ordinary thinking. Instead, it is ordinary thinking done well, that is, reflectively, with attention to criteria, and with the goal of making a defensible, reasoned judgment.

With this definition in mind, let’s consider what a project would look like that required students to be critical thinkers. First, it would be structured around a non-Googleable Driving Question, meaning a Driving Question that does not yield to a simple Google or library search. Questions like: “Who were the first settlers in our city?” or “What does it mean to be a healthy eater?” or “How are airplane wings constructed?” or “Why is the sky blue?” – these are all Googleable. That’s not to say they aren’t worth knowing, because they are, and they can lead students to engage in a form of research. Such research, however, emphasizes uncovering information and explicating concepts, rather than thinking critically about information and concepts.

Compare those Driving Questions to: “What was the most important cause of our city’s growth?” “How can we best convince teenagers to be healthy eaters?” “How can we design an airplane wing that is light and will support 25 pounds without breaking?” or “Which is bluer, the sky or Frank Sinatra’s eyes?” These questions can cover the same content, but to answer them, students will need to do more than merely look something up. They will have to – depending

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The Critical Thinking Consortium

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on the question – define terms, consider whether information and concepts vary according to context, weigh multiple explanations evaluate evidence, and compare alternative actions based on their probability of success. This is critical thinking – careful thinking, done reflectively, with attention to criteria.

As important as Driving Questions are, they are generally insufficient to evoke careful thought. That’s where project tasks come in. In Project Based Learning, in order for students to learn something, they must do something. Projects that develop critical thinking competencies are designed around cognitive tasks that require deliberative thought – making judgments between alternatives, figuring out the best way to create something, weighing evidence, reconsidering initial ideas, creating a plan for solving a problem, summarizing an argument’s key points.

Critical thinking projects not only require students to think carefully and deliberately, they provide models and scaffolding to show how such cognitive tasks are carried out. For example, a project requiring students to examine the multiple causes of their city’s growth (formation of immigrant communities, establishment of factories, location on a transportation route, proximity to natural and other needed resources, etc.), weigh their relative importance, and identify the most important cause, can give students practice in brainstorming causes, forming specific hypotheses, testing these hypotheses at different points in the town’s growth, discussing in small groups which hypotheses seem more explanatory at different points in time, crafting a well-reasoned argument and finally, preparing a public presentation based on that argument. Teachers can scaffold and guide students by defining the specific competencies used in the project, modeling them for students, giving students the practice and feedback they need to develop the competencies, and finally, requiring students to explain during the project’s public presentation how critical thinking was used in the project.

Non-Googleable Driving Questions, deliberative cognitive tasks, support and scaffolding – these all combine to create projects that help students become critical thinkers. There is one more element, however, that needs to be added to this mix – formative assessment and feedback. Students need to know how they are doing: Are they being thoughtful or thoughtless? Are they thinking carefully or carelessly? Students can learn to evaluate their own thinking and they can learn to evaluate the arguments and reasoning of their peers. This ability to think about the quality of their own and of others’ thinking is encouraged by timely, relevant, actionable feedback from the teacher, from their peers and from their own self-assessments.

So does PBL teach critical thinking? Our answer is that it can, but a project has to be structured with critical thinking as a goal. Simply putting students together to design something, or build something, or research something will not necessarily lead students to develop critical thinking competencies. Too many people, PBL practitioners and advocates alike, assume that PBL is synonymous with critical thinking. It’s not. John Dewey, as usual, had already plowed this ground. He wrote in *Experience and Education* that:

> The belief that all genuine education comes about through experience does not mean that all experiences are genuinely or equally educative.

For critical thinking to occur, projects have to be structured to demand deliberate, reflective thought, and students have to be shown examples of what critical thinking looks like, in addition to being supported, assessed, encouraged and given feedback as they try such thinking out with their peers and on their own. Only then can PBL become “genuinely educative” for critical thinking.