

THE MAIN COURSE, NOT DESSERT: How Are Students Reaching 21st Century Goals? With 21st Century Project Based Learning

John Larmer and John R. Mergendoller 2010

As the volume level rose, Christina tried once again to convince her group that she was right about how Guatemala should try to increase tourism. “We can’t focus so much on the history and the jungle! We should show more on our website about the other reasons! How about the beaches—remember that chart we saw about how warm the weather is in winter? Or the low prices—remember the exchange rate?”

Her teammates listened, and seemed to be wavering. Maybe she was right and they had been getting lost in the details of their historical and environmental research. The point, after all, was to answer the question, “What makes a place a destination?” and create an effective web page for their client nation, not to show off how much they knew about the Mayan ruins or howler monkey habitat. But the presentation deadline was approaching, and their timetable called for finishing the draft of their proposal by Monday. As they paused for a “process check,” they decided to revise their work plan to allow time to discuss Christina’s ideas.

Around them, the social studies classroom was a flurry of activity. Some students worked their laptops, checking for messages from the travel agency or doing more research on the nation their group had chosen. Others were figuring out the fine points of web page design as they studied professionally-done examples and the rubric their teacher had given them. A few students were gathered around the teacher, who was answering questions to clarify their understanding of time zones. When the lunch bell rang, no students left the room.

The project above took place at New Utrecht High School in Brooklyn, New York, in the Academy of Hospitality and Tourism, using new project-based curriculum materials from the National Academy Foundation and the Pearson Foundation. According to teacher Griselda Vile, “Students love the project. They get to share their prior knowledge and have more choice, so they take ownership.” She also notes that her ninth graders are motivated to do high-quality work because they know a panel of adults from outside the classroom is going to be their audience and will ask tough

questions. And she knows from conversations that her students remember what they are learning about history, geography and world cultures as they build collaboration, problem-solving, communication and technological skills.

Although projects have been a recognized part of instruction for nearly 100 years (Kirkpatrick, 1918), teachers have too frequently traded apparent student interest and excitement for in-depth learning. Our purpose in this article is twofold: 1) distinguish “main course” project based learning (PBL) from the short duration and intellectually lightweight activities and projects common to many classrooms; and 2) argue that PBL is an essential tool for preparing students to reach 21st century educational goals and succeed in the 21st century.

PROJECTS VS. PROJECT BASED LEARNING

Most readers of this article have done projects as students, and may now be doing these with their own classes. In a typical unit of instruction containing a project, a teacher covers a topic with a combination of lectures, textbook readings, worksheets, and perhaps short activities, video programs and website visits. Then, students are given an assignment to do on their own at home:

say, to create a poster about a disease, showing its effects on the body, how the body reacts, and how it is treated. These “projects” are displayed in the classroom, but are not formally presented or discussed in detail. The unit culminates with a test emphasizing factual recall.

As Expeditionary Learning Director of Instruction Ron Berger puts it, the teacher covers the main course of study in the usual way, and then a short “project” is served up for dessert. In 21st Century Project Based Learning it is the project that is the main course — it contains and frames curriculum and instruction. Consider, in contrast to the “dessert” projects, the rigor and depth of the Project Based Learning described below.

In a math class at City Arts and Technology High School in

San Francisco, students in teacher Stephanie Lundin's "Greenbacks or Greenspace?" project use matrices and linear algebra to decide how to best use some vacant land in the city for either recreation or development. In the role of consultants to the mayor of San Francisco, student teams present their recommendation in the form of a formal written proposal, including an explanation of the math used to solve for the most cost-effective land allocation.

At Beachwood High School in Ohio, students in Greg Perry and Jason Ledonne's Marketing class produce a showcase at the Community Center designed to raise awareness of environmental responsibility. The "Green Dream" project has become a massive community-wide event every April since 2007, this year drawing 2500 people to see over 70 local businesses and organizations display their environmentally-friendly practices, services and products. Proceeds from the event go toward funding an "ultimate green classroom" with solar panels and an outdoor learning environment.

At the ARISE Academy in Oakland, California, students in the 11th grade Humanities class experience a multifaceted project focusing on the question, "What creates change and a movement?" They learn about the history of social movements in the U.S. and choose a civil rights topic for a research paper. In their service learning internship, students conduct some sort of social action related to their topic. In partnership with the San Francisco School of Digital Filmmaking, they produce a short film about themselves, their families, and/or people in their community in relation to civil rights. Finally, students present their work to a committee, answering questions about the choices they made, their knowledge of the topic, and their reflections on what was gained by doing the project.

These are not projects where students simply apply what they have learned from traditional instruction. This is "main course" Project Based Learning where students learn the material from completing the project. A "main course" project:

- is intended to teach significant content. Goals for student learning are explicitly derived from content standards and key concepts at the heart of academic disciplines.
- requires critical thinking, problem solving, collaboration, and various forms of communication. To answer a Driving Question and create high-quality work, students need to do much more than remember information. They need to use higher-order thinking skills and learn to work as a team. They must listen to others and make their own ideas clear when speaking, be able to

read a variety of material, write or otherwise express themselves in various modes, and make effective presentations. These skills, competencies and habits of mind are often known as "21st century skills," because they are prerequisite for success in the 21st century workplace (Partnership for 21st Century Skills, 2008).

- requires inquiry as part of the process of learning and creating something new. Students ask questions, search for answers, and arrive at conclusions, leading them to construct something new: an idea, an interpretation, or a product.
- is organized around an open-ended Driving Question. This focuses students' work and deepens their learning by framing important issues, debates, challenges or problems.
- creates a need to know essential content and skills. Project Based Learning reverses the order in which information and concepts are traditionally presented. A typical unit with a "dessert" project – and most instruction – begins by presenting students with knowledge and concepts and then,

This is "main course" Project Based Learning where students learn the material from completing the

once gained, giving students the opportunity to apply them. Project Based Learning begins with the vision of an end product or presentation. This creates a context and reason to learn and understand the information and concepts.

- allows some degree of student voice and choice. Main course Project Based Learning is not a paint-by-the-numbers experience. Students learn to work independently and take responsibility when they are asked to make choices about how they work and what they create. The opportunity to make choices, and to express their learning in their own voice, also helps to increase students' educational engagement.
- includes processes for revision and reflection. Students learn to give and receive feedback in order to improve the quality of the products they create, and are asked to think about what and how they are learning.
- involves a public audience. Students present their work to other people, beyond their classmates and teacher – in person or online. This "ups the stakes," increasing students' motivation to do high-quality work, and adds to the authenticity of the project. Project Based Learning is a filling meal of rich content knowledge and the skills valued by employers in a globalized economy (Wagner, 2008). If we wish to prepare a generation of students who can solve real-world problems, we must give them real-world problems to solve. If we

want to graduate students who can manage their time and collaborate with others, we must give them guidance and practice managing their time and collaborating with others. The older, dessert model of “doing a project” may taste sweet, but it’s not going to enable 21st century students reach 21st century learning goals.

HELPING THE CHEFS MEET 21ST CENTURY GOALS FOR STUDENTS

A minority of individual teachers across the country are doing the hard work of planning and cooking up nutritious main course Project Based Learning, and preparing their students to reach 21st century goals. However, these efforts are not reinforced by similar practices in other classrooms across the school, where the majority of students never get this opportunity. While it is possible to do PBL in almost any school environment, it is most feasible and most effective when certain school conditions are in place. Looking at school models where all teachers are successfully creating main course PBL (e.g., Envision Schools, New Technology High Schools, Expeditionary Learning Schools, High Tech High and Middle Schools, EdVisions Schools, etc.), we find they have the following features in common.

- Common values, definitions and assumptions about what constitutes good instruction. Main course Project Based Learning is considered the norm by teachers and students.
- Project libraries containing a range of projects to use or adapt. Since these lie at the heart of main course Project Based Learning, they are vetted for quality, road-tested in classrooms and made easily accessible online with complete resources and instructions.
- Professional development and coaching from experienced Project Based Learning teachers. This includes materials and workshops on designing projects, site visits to model schools where main course PBL is thriving, and sustained support over time from peers and instructional coaches.
- Supportive school policies and practices that improve PBL quality and ease of use. In addition to — and as an effective form of — professional development, schools with main course Project Based Learning provide plenty of time for teachers to meet with colleagues to plan projects, critique and fine-tune lessons, and gather and share resources. Common, calibrated rubrics for 21st

century skills are used by the whole school, and grading policies and practices are standardized to account for the use of PBL. The facilities, materials, and technology for projects are readily available, and shared project calendars make it possible to schedule project components in different classes without conflict. Daily and weekly schedules are adjusted to provide longer and more flexible blocks of class time for PBL

- Administrative and instructional leadership that puts a priority on providing the time and other resources necessary to make PBL happen. These leaders promote main course PBL to parents, the community, and the students, to be sure everyone is on board with the effort, and help troubleshoot implementation issues when they occur.

Students are learning because they have a real need to know something, so they can use this knowledge to solve a problem or answer a question that matters to them.

Moving to Scale

The model schools and classrooms described above provide proof points for main course Project Based Learning, and the 21st century preparation it provides. The features listed above describe what needs to be done at the school level for consistently implemented, successful PBL. But moving from individual schools to mass implementation of main course Project Based Learning will require vision and leadership at the district, state and eventually, the national level. In West Virginia, we find one example of how this could occur. Governor Joe Manchin and State Superintendent, Dr. Steven L. Paine have created Teach 21, a multi-faceted initiative to better prepare students to meet 21st century educational goals. Teach 21 is a top-to-bottom effort to redesign West Virginia schools for the 21st century. It includes rethinking and revising state standards and assessment, teacher

credentialing and professional development. Relying on wikis and other technologies to share information, disseminate approved project designs and support teachers, West Virginia educators and their students are being treated as 21st century learners.

Main course Project Based Learning is an instructional strategy that enables students to learn meaningful content and practice skills needed for 21st century success. If we are serious about reaching 21st century educational goals, main course Project Based Learning must be at the center of 21st century instruction.

References

Kirkpatrick, W.H. (1918). *The Project Method*. Teachers College Record. Also reprinted in Schultz, F.(Ed.) *Sources: Notable Selections in Education*. Guilford, CT: The Dushkin Publishing Group., Inc. pp.26-33.

Partnership for 21st Century Skills. (2008). *Transition Brief: Policy Recommendations on Preparing Americans for the Global Skills Race*. Available: http://www.21stcenturyskills.org/documents/p21_transition_paper_nov_24_2008.pdf

Wagner, T. (2008). *The Global Achievement Gap: Why Even Our Best Schools Don't Teach the New Survival Skills Our Children Need—And What We Can Do About It*. New York: Basic Books.