

## Best Practices Newsletter

MARCH 17, 2015

### Increase Student Engagement Through Project-Based Learning

We learn by doing. This simple philosophy is at the heart of project-based learning in the 21st-century classroom. It's grounded in the belief that the stand and lecture approach to teaching, worksheets and rote memorization are not enough to move students down a path to the deep learning necessary for success in college and careers. Essential are interdisciplinary teaming and career academies focusing heavily on involving students in authentic, real-world assignments requiring a mix of hands-on activities, critical thinking, technology and soft skills.



#### Diving Into Project-Based Learning

Project-based learning (PBL) is an effective way of teaching that engages students in real-world assignments, promotes deeper learning and prepares students for college, careers and life.

Many students have mentally checked out of school; they're bored and disengaged from learning. In PBL, students don't just sit back and passively listen to lectures; they are involved in completing real-world projects designed to pique their interests and aspirations. With this kind of engagement, students retain more and can apply their knowledge to new situations.

"A good project-based learning experience connects significant content standards to a problem that students find authentic, and it allows them to do relevant work on that problem while learning those standards," said **Tim Kubik** of the Buck Institute for Education.

Teachers design projects around standards, but allow students to have some freedom to explore and a degree of choice to make the work meaningful. Teachers integrate necessary lessons throughout assigned projects as students need or are ready for them. Students use these lessons to overcome obstacles as they complete their projects. Most students want to complete the work, even mundane tasks such as cleaning up after

themselves, because these are their projects and they own the process, according to Kubik.

Kubik refers to the PBL teacher as being the “mentor in the center, rather than the guide on the side.” Therefore, the teacher must learn new methods of classroom management and must actively observe students while they work, noting when a team or individual needs assistance. Some teachers use a traffic light at each station to alert them when a team needs help.

Students who typically struggle show the most improvement with PBL learning. Additionally, research shows exam scores generally increase as students and teachers gain confidence with PBL, Kubik said. Overall studies indicate there are a myriad of positive outcomes from PBL learning: increased student engagement, greater depth of learning, a heightened ability to solve problems, and increased literacy and technology skills.

### Teamwork

“There are very few real-world, authentic projects where individuals work alone, and thus most PBL assignments are a teamwork experience,” said Kubik. “Teams imply clear roles and responsibilities as well as clear opportunities to showcase gifts or to target learning,” he continued.

While students do have some degree of choice about how to complete the project, students do not select their teammates until they gain experience with PBL. Using a sports metaphor to explain proper PBL classroom management, Kubik said, “I never met a good coach who tells team members at random: ‘You play offense; you play defense, and you sit on the bench.’” The teacher uses student data to assign and develop teams. As students gain experience with PBL, the teacher allows students to have a voice in the makeup of the team.

### Projects vs. Activities

Some teachers confuse students completing activities or having fun learning experiences with PBL, Kubik cautioned. “PBL is not ‘dessert,’ or a reward for good behavior, something to be completed after students finish their assigned work.”

There are two differences between most classroom activities and a good project-based learning experience. First, Kubik indicated activities are often thematically

related to content but may not be directly tied to performance standards. Secondly, many classroom activities are really meant as project-based assessments, rather than project-based learning experiences. Effective PBL assumes that engagement with rigorous content can facilitate student learning on its own and does not require pre-teaching prior to the activity.

When the teacher is unsure if the project assigned is using PBL methodology or if it is simply an activity, he or she might ask the following questions:

- Do I only assign projects after state testing is complete?
- Does the student complete the project only after all required work is complete?
- Can the student complete the project by writing a research paper?
- Is the final product something students leave behind in the classroom when the project is over?

If the answer to any of the above questions is yes, the teacher has room to improve the project. A good tool to help the teacher or teaching team is the PBL design rubric available at [www.bie.org](http://www.bie.org).

### Adjusting to Project-Based Learning

The PBL model requires time for teachers and students to adjust to the method. Generally, it takes one to 3 1/2 years for a teacher to adapt to the new way of teaching, Kubik said. He suggests starting small, with only one subject area and a project that takes one or two weeks for students to complete. Changing to the PBL model is not one large paradigm shift, but a series of small shifts. After teachers and students become more comfortable with the method, teachers should consider more complex projects, interdisciplinary projects, or schoolwide projects.

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## Interdisciplinary Teaming and Project-Based Learning

Project-based learning (PBL) is an excellent way for students to work on authentic projects. It provides that “aha” moment when students suddenly understand the reason math, science or language arts is important, not just in the classroom, but in the real world.

At **Alamogordo High School** (AHS) in Alamogordo, New Mexico, students in the freshman academy are engrossed in PBL. The ninth-grade academy has three teams of five teachers (English/language arts, math, science, social studies and health and physical education). Each team shares common students and has common prep periods — a perfect combination for taking an interdisciplinary approach to PBL.

“We wanted to look at doing something that was more interdisciplinary with our students rather than operating in subjects and silos,” said ninth-grade science teacher **Eric Nodge**. During the 2013-14 school year, AHS planned interdisciplinary units for the freshman academy teams. Each team completed one project related to one of the school’s career and technical education (CTE) tracks.

Since the freshman academy teams have common prep time, teachers spent about three hours each week planning projects, discussing the crossover between their disciplinary standards, deciding what they wanted students to produce and developing a rubric.

### Interdisciplinary Culinary Arts Project

Nodge’s class developed a project connected to the culinary arts program. For example, students explored where various foods came from, the nutritional value of food and nutritional labels. They were tasked with synthesizing all of the information into a magazine format.

### Project Assignments Broken Down By Class

**In health class**, students examined nutrition facts and the impact food selected by the team had on individuals’ health.

In math class, students tackled nutrition labels, calculating the daily dose of vitamins based on those labels.

In social studies class, students focused on how a local business operates and creates advertising.

**In science class**, Nodge’s students explored how food is processed, examined genetic engineering, how to genetically modify food and researched whether it’s harmful to health.

**In English class**, students pulled together all the information into the final product — the magazine.

The goal was initially to make the magazine available to the public, but lack of resources prevented that; the primary readers were the teachers. Teachers sat down as a team and graded the projects, and students received an individual and a whole-group grade.



### Engineering Project

Another team partnered with the city on an engineering project titled, “So There Is Nothing to Do in Alamogordo.” Team members surveyed other students to get opinions about potential activities in the city. The survey showed overwhelmingly that students wanted a fun center; so each team designed its own. This involved an architectural component; students studied the impact building would have on the environment.

Teachers selected two winning projects, and those students presented their ideas and designs to the city council. The city’s project to build a new family recreation center is still in the works, so it’s unknown if students’ ideas and suggestions were taken into consideration in the final planning stages. In any event, their voices were heard.

## Students Working Across Class Lines

Teachers provided students initial instructions about the projects in their subject-area classes, and students worked on their assigned tasks through the course of several weeks. Two class periods were set aside for students to work with teammates in other classes to move the projects toward the finish line.

## Lessons Learned

Project-based learning is continuing in the 2014-15 school year, but Nodge said it's been scaled back and involves a crossover between two to three subject areas rather than five. "It's more manageable for students and they are not overwhelmed by a mass project," said

Nodge. He also said there are several benefits to doing interdisciplinary PBLs, but added, "It is better to ease into it so that students are used to working across class lines."

Nodge also said more flexibility makes for a better project. Since this was their first foray into PBL, it was more rigidly structured than he would have liked. "Leaving PBL somewhat open ended will allow students to invest creatively in their projects and take more ownership of the product; however, I think students need to have a familiarity with the concepts of PBL before it can be opened up that way," he added.

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## Interdisciplinary Teams Addressing the Needs Students

In 2012, 47 percent of ninth-graders were retained at the **Springfield High School for Science and Technology** (HSST) in Springfield, Massachusetts — dismal data that could translate into dismal futures for students if something wasn't done. But something did change at HSST.

The district decided to implement a ninth-grade academy to address the needs of freshmen and put them on a path to becoming successful students in the upper grades and eventually change the culture of the entire school. Interdisciplinary teams, where a group of core teachers share a common set of students and a common planning period to focus on the needs of their students, were put into place in the fall of 2012.

At the end of the 2013-14 school year, the retention rate for freshmen had dropped to 15 percent from 47 percent in 2012 and down to 9 percent after summer school. The staff credits ninth-grade interdisciplinary teaming, standards-based grading and reteach/redo procedures.

"The teachers in these interdisciplinary teams were able to collaborate in addressing the specific needs of their students including students not meeting grade-level standards, and students who had attendance or behavior issues," stated **Alan Veach**, the High Schools That Work (HSTW) school improvement consultant assigned to the school.

"The teams were given the autonomy to do whatever it took to help students succeed, including implementing a redo policy and requiring all students to complete all work," Assistant Principal **Jennifer Gray** said. "Through teaming, we were able to increase attendance, improve school culture, combat the social promotion mentality from the middle grades school and help students to succeed," said **Rachel Aierstuck**, a freshmen English/language arts teacher. The teachers indicated they had built their success on the "**Three Pillars of Teaming**," comprising communication, flexibility and creativity.

## Communication

The teams meet every other school day (the school is on an A/B 80-minute block schedule) for at least 60 minutes. Counselors and administrators attend the meetings at least once each week. Each team has set agendas which include roll calls of students experiencing difficulties and suggestions for addressing each student's needs. Team meetings are also used to meet with individual students and or parents. According to algebra teacher **Fred Hurst**, effective team meetings focus on actionable outcomes. Hurst identified the guiding philosophies of the teams:

- Do what is best for the students.
- Grade less and assess more. The teams stress formative assessments over summative assessments.

- Promote malleable intelligence.
- Create community and foster collaboration to make sure no class, teacher or student is an “island.”

Documentation is imperative. Forms are used to record team meeting minutes, track student discipline, document conferences between the team and students or the team and parents with or without students. Forms are also used to corroborate innovative team interventions and for sharing with other staff members.

Effective communication is also fostered through student-team and parent-team meetings rather than individual teacher meetings. Telephone calls to homes can be done by one teacher on behalf of the entire team rather than all teachers calling home.

### Flexibility

Teaming provides a “united front” in the eyes of students,” said algebra teacher **Jessica Johnson**. Administrators and counselors at HSST give teachers the power to make decisions regarding their students. This allows teams to provide informed, meaningful consequences that are tailored to student needs. “When students mess up, all the teachers know about it, and when they are successful, all teachers know about it and react accordingly in both situations,” Johnson added.

The teams have implemented a standards-based grading philosophy that requires students to redo assignments and assessments not meeting grade-level standards. Students are also required to complete all work whether for a grade or not. These policies require a lot of flexibility from each of the teachers in helping each individual student to succeed. Johnson indicated there is also flexibility in handling discipline issues, regardless of school rules. Teachers who share the same students know what is best for each student, she maintained.

### Creativity

Each team has its own identity, and even though teams share common practices, each team is creative in the way its students’ needs are addressed. English/language arts teacher **John McCarthy** stated, “Don’t take yourself too seriously when creating teams — the more fun, the better.” He also said, “Successful teams approach everything with open minds. They are willing

to cast aside personal preferences and use collective group ideas to further the team’s success, and create opportunities for students to care about their team.”

Students decorated team hallways with personal crests, team mascots and team bulletin boards. Teams also took instructional field trips as rewards for being successful. Team councils were created to give students a voice in decision making.

McCarthy noted teams need to create ways to celebrate. “Find ways to reward all students and not just the high-achieving ones. Have team assemblies and give out rewards to students; also celebrate team successes.” For example, McCarthy shared how at the end of the year, students who were promoted received “Sophomore Pride” t-shirts. School officials boasted that about 85 percent (ninth-graders) had been promoted and they expected more to be promoted after summer school. Students then stood up and applauded those going to summer school, encouraging them to do well.

Teaming should lead to interdisciplinary projects involving two, three or all four content areas. Teachers have to be creative in developing these projects. Teachers can be innovative in developing common classroom practices such as common pedagogy on instruction, common vocabulary, common classroom rules and expectations, and even in coordinating major projects and exams so students will not be overloaded.

Teachers learned early on that ninth-grade students did not seem to understand the credit promotion system. According to McCarthy, the solution was “to give students a driving, concrete incentive to pass classes. Students learned about the reality of high school retention without having to fail.”

As a result of the success of the ninth-grade teams, teaming is being implemented with 10th-grade students. The goal: As these students move up, the entire culture of the school will change.

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## Engaging Career and Technical Education Students in Reading and Writing

When three English teachers were tasked with teaching at-risk students in a new program housed at a career-technical center, they knew they had to use effective, proven strategies in their language arts instruction.

According to **Angela Weisner**, literacy coach and eighth-grade English teacher at **Pickens County Career and Technology Center** (PCCTC) in Liberty, South Carolina, the new program served 140 students during its first year. More than half of those students were overaged. More than 61 percent received free or reduced-price lunches, and 35 had Individual Education Plans (IEPs) or 504 classifications.

The framework the teachers used was the Literacy Design Collaborative (LDC), a standards-based process for providing students with engaging and authentic assignments based on the reading and understanding of complex texts. LDC provides a system for developing reading, writing and thinking skills within a variety of academic disciplines, not just in English/language arts courses. LDC's basic building block is the module: two to four weeks of instruction comprising a "teaching task," standards, "mini-tasks," and other instructional elements including an instructional plan and assessments.

PCCTC adopted the C3 (College, Career and Citizenship) program to help students in grades eight through 12 develop the character skills and qualities employers look for in the people they hire. Teachers Weisner, **Brittany Goza** and **Ashley Muse** found LDC to be an ideal way to meet the needs of their students and the goals of the C3 program.

### Authentic Writing Assignments

With the support of their SREB Technology Centers That Work (TCTW) trainer, the three teachers participated in six days of LDC training and developed an LDC module/instructional unit based on the following task prompt: "What does it mean to be a citizen of character? After reading teacher-selected articles at [www.c3character.wikispaces.com](http://www.c3character.wikispaces.com), write the script for a public service announcement based on your assigned character trait in which you describe what it means to be a citizen who embodies that trait. Support your script with evidence from the texts."

### Showcasing Work at Film Festival

Over the span of the module, students in the C3 English classes read a minimum of 16 articles on various character traits and took Cornell notes on their readings. They also created brochures on specific traits, wrote public service announcements, created storyboards for short films, made iMovies in collaboration with the graphic communication class and hosted a film festival for the community.



At the festival, attendees voted for the film they judged best. According to teachers, the project helped students develop a high level of motivation, a sense of pride and responsibility and a feeling of accomplishment when they were recognized by the community for their hard work.

### Students Improve Reading Skills

Not only did students feel better about themselves, they also improved their reading skills. According to Weisner's first quarter pre-assessment data, 20 of her students read below grade level, 11 read on or above grade level, and one read on the high school level. Some students read on levels as low as third grade.

Fourth quarter post-assessment told an entirely different story: Only seven students read below grade level; 21 read on or above grade level, and 10 of the 21 read on the high school level. No student read below the sixth-grade level. The average reading level improvement was two years; the greatest improvement was five years.

Weisner, Goza and Muse are quick to acknowledge that LDC was not the only new tool they used in the classroom. They relied on Edmodo and Wikispaces to manage paperwork and connect students to their

reading materials, but they give credit to LDC for offering their at-risk students a new and engaging way to approach literacy instruction.

Edmodo and Wikispaces are free social learning platform websites for teachers, parents and students to connect and collaborate anytime, anywhere.

It takes learning beyond the classrooms and textbooks. Click [here](#) to learn more about LDC and SREB's on-site teacher training.

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## Career and Technical Education Students Stand Out Thanks to Career Portfolios

When students leave **Caddo Career & Technology Center (CCTC)** in Shreveport, Louisiana, they graduate not only with the skills necessary for college and career readiness, but with a career portfolio that can open doors to multiple opportunities including postsecondary study, jobs, scholarships and advanced training.

CCTC is a shared-time magnet career-technical center that offers 24 career and technical education (CTE) programs of study and serves students from 10 sending high schools in the Shreveport area. Students in grades nine through 12 take a two- or four-hour block of classes at the center each day, and all are required to develop an e-portfolio that chronicles their CTE learning experiences from the time they attend the center until they graduate high school.

But the portfolio is not limited to pictures and lists, students must describe the purpose of the project and the process they were engaged in when doing projects. "We want students to have their career portfolios to show what they know and can do," said CCTC director **Gayle Flowers**.

A résumé, cover letter, honors and recognitions and organizational affiliations are also included in the portfolio. "It is not a scrapbook of their high school experience; it is a portfolio of what they have accomplished and the skill set they have acquired, and a recognition for those achievements to present to a college or employer, said Flowers. "We have found it helps students begin to learn for learning's sake and not for a grade, because they want a rich and well-developed portfolio," she added.

The programs of study at CCTC include, but are not limited to: accounting, air conditioning and refrigeration, auto body repair, teaching professions, culinary arts, nurse assistant, dental assistant and fashion design.

CCTC has advisory councils in each program. Employer partners, who are part of the council, review students' portfolios and offer suggestions for improvement. They also weigh in on relevant projects students might tackle to expand their abilities and give their portfolios a higher profile.

### Career Portfolios Open Doors

Flowers said students use their portfolios in a number of ways: for mock interviews, actual interviews, unpaid and paid internships and entrance into college. Flowers proudly remembered getting an email in 2013 from a young lady who was part of the centers' teaching profession program during her 11th-grade year. The student moved to Colorado with her family



For example, if students are enrolled in a dental assistant class and they make a bleaching tray or an alginate impression for a patient as part of a class project, students would showcase that in their portfolios. Students in a computer-aided drafting class would show examples of 3D projects or architectural drafting. Students in a health-care program would keep a reading log and copies of articles they've read that are pertinent to the medical profession.

and applied for a scholarship at a Colorado university. She shared her portfolio with university officials who expressed it was the best they had ever seen. The student was admitted and received a scholarship to the university.

Years earlier, another student developed a portfolio focused on the drafting career area. Flowers said he later went on to attend college in Atlanta and wanted to apply for an internship during his freshman year. The university balked at the idea since internships were usually granted to juniors and seniors, but officials soon acquiesced and allowed him to apply. On the strength of his high school portfolio, the freshman student was able to obtain an internship at a major manufacturing company.

### The CCTC Foundation

CCTC students also benefit from a very active scholarship foundation. The CCTC Foundation, made up of volunteers from the community, is now in its 20th year. The 510(c)(3) organization accepts tax-deductible contributions from individuals, businesses,

associations and industry. The foundation provides \$2,000 scholarships for which seniors attending the center compete; the scholarships are not available to students from other schools.

The career portfolios are one component of the application process. Applicants must have at least an overall GPA of 2.0 (3.0 in their technical areas), must submit their career portfolios, three letters of recommendations including one from their home schools and the endorsement of their CCTC instructors.

The applications and portfolios are reviewed by a foundation committee, and 35 to 40 scholarships are awarded to students each year. In the past 19 years, the foundation has provided scholarships totaling \$900,000 to 619 deserving students.

Students keep both a hard copy and an electronic version of their portfolios. In addition to allowing them to see their growth, reflect on it over time and document their experiences, the e-portfolio has the added benefit of being easily accessible after students leave school.

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This newsletter describes best practices in implementing the High Schools that Work (HSTW), Making Middle Grades Work (MMGW) and Technology Centers That Work (TCTW) school improvement models based on presentations at the 28th Annual HSTW Staff Development Conference in Nashville, Tennessee in summer 2014. For more information about the school improvement models offered by SREB, contact: Gene Bottoms, senior vice president, at [gene.bottoms@sreb.org](mailto:gene.bottoms@sreb.org) or call (404) 875-9211.