



### Focus: Student Leadership and Engagement

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# Project Based Learning for Student Success – Teaching Across Content Areas for Diverse Learners

by Mark Barnett

Adopting project based learning was a primary goal of Principal Dawn Worley at the newly formed the JSTEM Academy, a middle school in Converse, Texas, two years ago. Mrs. Worley started with the expectation that all of her staff would be teaching through project based learning, not just those who are teaching STEM courses at her STEM-focused middle school. She knew that her staff needed training, expertise and coaching to get the ball rolling.

IDRA worked with Mrs. Worley and her staff to create a three-year plan for project based learning (PBL) implementation where Year 1 was exploratory, Year 2 focused on growth and Year 3 will have all teachers teaching through project based learning at least 80 percent of the school year.

### Project Based Learning Culture Starts with a Bold Vision from Leadership

In order to facilitate the challenges of project based learning, a strong commitment from school leadership is needed to sustain long-term success. Adopting project based learning will lead to some challenges, like moving a scope and sequence around to fit a particular project or changing the entire school schedule for a week for student presentations.

Mrs. Worley at the JSTEM Academy is an example of a dedicated principal willing to take risks and clear obstructions so that project based learning can remain the primary goal for instruction. Adoption requires commitment and cooperation

from the entire staff, but the campus leader should have a vision for how it will be implemented with success.

### Cross Curricular Project Based Learning

Some of the strongest PBL units at the JSTEM Academy come from the social studies and English language arts teachers who work closely with math, science and other teachers to facilitate projects that not only connect to state standards but also enhance them through making cross-curricular connections. Project based learning is meant to emulate how professionals might work in project based settings, so it is only natural that PBL units connect to multiple studies as well.

While the JSTEM Academy is focused on increasing STEM-related skills for students, every PBL unit is tied to at least two content areas. JSTEM Academy teachers also have access to three makerspace learning labs where students can use state-of-the-art equipment like hand tools, 3D printers and sewing machines to create project deliverables.

Cross-curricular connections become evident when watching students work in the makerspace learning labs. For example, one seventh grade project required students to cut out stencils to make political posters that combined social studies content and math content. Students used scroll saws and cardboard to make the stencils  
*(cont. on Page 2)*

*“Whether engagement is used in the context of students being captivated during lessons by powerful learning opportunities or in the larger arena of activism, engagement is a vital part of academic success for students.”*

– Dr. María “Cuca” Robledo Montecel, IDRA President and CEO

(Project Based Learning for Student Success, continued from Page 1)

that were mathematically proportional to their blueprint drawings.

### Project Based Learning with Diverse Learners

In Judson ISD, 55 percent of the students are Hispanic and 22.2 percent are African American; 70 percent are economically disadvantaged and 18 percent are English learners. This makes for a fairly diverse group of students. The JSTEM Academy student body reflects proportionally to the school district. It also accepts students from across the whole district.

To tackle the needs of diverse learners, the JSTEM Academy has incorporated elements of culturally responsive pedagogy where teachers encourage students to let their own unique cultures shine through various projects. Civic engagement, service learning and teaching empathy are other core areas of concern that are built in by design when teachers are planning PBL units.

One way to increase opportunities for diverse learners is through providing project options where teachers give students several choices for project presentations. Students can select the medium for their project deliverables and presentations that match their unique strengths and styles.

### Teacher Professional Learning Community

Creating cross curricular PBL units can only be successful when teachers work together and are given specific time to do so. At the JSTEM Academy, teachers are given time to regularly plan with other teachers to design PBL units that stretch across content areas. During this time, teachers use a reflective practice called *critical friends protocol* to give each other constructive criticism for tweaking and modifying PBL units.

**Project Based Learning PBL Elements**

- Key knowledge, understanding & success skills**: The PBL lesson is driven by very specific student goals tied to the state standards that need to be taught to be prepared for a standardized examination.
- Challenging Problem or Question**: The PBL lesson has a driving question that is meaningful and challenging to students.
- Sustained Inquiry**: The PBL lesson tests several design or even usability because students need to be in a constant state of asking questions and applying knowledge.
- Authenticity**: The PBL lesson is built around a real world authentic problem that relates to students' interests or personal concerns.
- Student Voice & Choice**: The PBL lesson gives students the opportunity to make decisions about their final product and how they collaborate within the group.
- Reflection**: The PBL lesson provides time for students and teachers to reflect on their learning, the quality of the PBL product & lesson, and any obstacles or concerns.
- Critique & Revision**: The PBL lesson includes time and space for students to get feedback from teachers and other students to improve their final product.
- Public Product**: The PBL lesson has students present their final products to the public, including parents, teachers and community professionals.

See how IDRA can work with your campus to design a PBL Implementation Plan and support it through professional development and coaching: <http://budurl.com/IDRApblP>

**Get our graphic on the 8 elements of PBL lessons**  
<http://budurl.com/IDRApbl8>

The staff work together collegially under the leadership of the principal who expects teachers to model successful team work. The teachers have created a professional learning community where they help each other with designing PBL units, hone their skills and seek to grow professionally. This professional learning community has been instrumental in the JSTEM Academy's success as they have grown over the past two years.

### Coaching

From the very first "Project Based Learning 101" professional development to the monthly coaching sessions, the JSTEM Academy has acknowledged the need for high quality professional development and coaching to guide educators through the process of adopting project based

learning as the main instructional strategy. Taking the plunge into project based learning shouldn't be done alone or without expertise. IDRA has been working with JSTEM Academy staff and leadership on every level of detail of PBL implementation and intends that the JSTEM Academy will become a model of success for other districts.

### Results of Project Based Learning

In 2016, JSTEM Academy students performed higher on state assessments than other students in the district and will have the option to continue to high school with a STEM endorsement. Parents of students at the JSTEM Academy have been pleased with how their students are responding to project based learning, and teacher turn-over has been almost zero. IDRA will conduct an in-depth evaluation of the effects of project based learning for the 2017-18 school year.

### Starting or Upgrading Project Based Learning at Your School

If you have been hearing about how project based learning can change the culture of instruction, increase test scores and increase student engagement, then let IDRA help you plan for implementation. To replicate the results that we have seen at the JSTEM Academy, we recommend a campus-wide three-year plan, commitment from a dedicated school leader, and a professional development and coaching schedule to ensure fidelity of implementation. Contact us if you are interested or want to learn more.

Mark Barnett is IDRA's Chief IT Strategist. Comments and questions may be directed to him via email at [mark.barnett@idra.org](mailto:mark.barnett@idra.org).

**DOWNLOAD** Get info on IDRA's PBL professional development  
<http://budurl.com/IDRApblP>

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# Community Projects, Youths and Academic Learning – Student Voice in Solutions to Challenging Problems

By Aurelio M. Montemayor, M.Ed., Bronce Yahir Márquez, Andrea Guadalupe Guzmán and Litzzy Castro

At 9:00 Saturday morning, more than 25 youth are at the ARISE Support Center buzzing with activity. While munching on fruit and sweetbread, they are completing a video that will be submitted to “Make Mercy Real,” a national Sisters of Mercy contest focused on their own critical concerns, especially around environmental justice. While one group is editing video clips, another is recording voice-over, and a third is working on an essay on the three projects highlighted in the video. This venture illustrates meaningful community projects conducted by young people that also are being documented for school credit.

The youth attend 10 different schools from six school districts. High-schoolers form the core of the group accompanied by younger siblings. Three ARISE centers located in *colonias* (unincorporated rural communities) sponsor and mentor the youth’s leadership projects with, in this case, the common theme of environmental justice. Deeply connected to families, ARISE faces community issues and challenges directly. Their children take on projects to help meet those challenges. Adult mentors and teachers assist with and facilitate the activities.

These student-led projects addressing community issues are rich learning contexts with inherent academic and social lessons, well known to educators who use project based learning. Project based learning is an ideal instructional process, undergirded by knowledge and skills standards, learner-centered, authentically connected to challenging problems or questions, and an opportunity for student voice, choice, reflection and presentation to their families and schools.

But these projects began in the community and are engaging with their schools rather than the traditional school-to-community route.

ARISE is a grassroots organization founded in 1987 that has fostered youth volunteerism in members’ own communities. Since its inception, it has offered a summer multi-week program to provide activities for young children to have fun and learn while being mentored by youths from

the same neighborhoods. If those activities had been connected to academic products, those teenagers could have written essays and stories and created multimedia presentations on how to help young children learn to read with joy or why community service is important... all for class credit.

Now, returning to the Saturday morning activities... In writing sessions that were held concurrently to the video completion, the students identified certain elements that were common across all projects: serving the community, improving the environment, taking action to reduce or solve environmental challenges, and committing time to the activities in spite of very busy school schedules. Following are samples of the youth projects.

The **ARISE Muñiz project, 2C K (Clean, Change and Keep it that way)** is in three *colonias*. The project aims to model for families cleaning up the environment, changing the world and keeping it that way with recycling and re-use. Because their neighborhoods have very limited public services, these students are collecting trash, tires and recyclable products and are encouraging all families to follow their example.

As they meet regularly to plan and carry out their activities, they will have a connection to their classes. They document and write about their actions and communicate with families to create a consciousness about protecting the environment. “We want to feel proud of our neighborhood,” one student wrote. “We are the living history of the future generations.”

The **ARISE South Tower Environmental Justice youth team** is in its second year of battling to change an open sewage treatment plant that has long plagued its neighborhoods. As the youth write, “We want to confront environmental racism, make justice happen, eliminate bad odors and have equality in communities.” Because of the efforts last year in speaking to the city and county elected officials, a million-dollar grant was obtained to seek a solution to the problem.

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*These student-led projects addressing critical community issues are rich learning contexts with inherent academic and social lessons, well known to educators who use project based learning.*



(Community Projects, Youths and Academic Learning, continued from Page 3)

The youth team received the U.S. Environmental Protection Agency President's Environmental Youth Award and the Texas House Award presented by the Texas Low-Income Housing Information Service. As they continue to face the problem, they inform their communities and persist in advocating for clean air, "Just because our neighborhoods are not where the rich people live doesn't mean we have to put up with the bad odor."

The **Las Milpas Youth Project** is Galaxy Park. A vacant park owned by the city, after several meetings with public officials, was adopted by a group of almost two dozen youths to "create a place where kids can be safe playing and where mothers can feel good about letting their children play." They wrote, "We have cleaned the lot so that we can create a park." Brainstorming in the initial stage of creating an essay to inform on the project, they wrote: "The problem: Empty and unsafe space for kids and an abandoned, barren landscape. The solution includes: Youth staying active; A place where the neighborhood can socialize; and A place where children can play."

These secondary school and college-age students have visited the Santana Wildlife Conservatory and met with city officials to get the proper permits to create the park and to have the city prepare the lot with heavy machinery. The team is studying plants that are native to the area and would be appropriate for a park and a habitation for the Monarch Butterfly. They will disseminate information to introduce Galaxy Park and create ownership among the families in the neighborhoods.

### Learning Objectives and Project Based Learning

The video weaves three projects. The students had initial instruction in creating a video, scripting and story-boarding. Each team videotaped their project and then collectively created an opening and closing. The video they are producing spans a significant array of knowledge and skills in video technology, English and social studies. Each project will result in products that individual students will present to teachers for credit (see box).

The project based learning coordinator of Pharr-San Juan-Alamo ISD is working with the project mentors and is facilitating the school connections for academic credit. They are working out the challenges of connecting multi-age/multi-school teams to specific teachers and classes. When the school-based project exhibits are presented later

## Community-Based Projects' Connection to State Learning Standards

A key objective from the Texas standards for video production is in innovative cognition. The student is expected to apply **English language arts** knowledge and skills by:

- Demonstrating use of content, technical concepts and vocabulary;
- Using correct grammar, punctuation and terminology to write and edit documents; and
- Composing and editing copy for a variety of written documents, such as scripts, captions, schedules, reports and manuals.

Other objectives vary by project but some apply to all. For example, in language arts, the students are developing an engaging idea reflecting depth of thought and specific details and relevance.

In **social studies**, the students are

- Expressing ideas orally based on research and experiences;
- Creating written and visual material, such as journal entries and reports based on their research.
- Using a problem-solving process to identify a problem, gather information, list and consider options, consider advantages and disadvantages, choose and implement a solution, and evaluate the effectiveness of the solution.

**Math** and **science** objectives also are incorporated. These learning objectives are taken from the Texas Essential Knowledge and Skills which are central to instruction in public schools. A longer array has been identified and is guiding the mentors across all projects.

this spring, the ARISE students will be there. The ARISE community groups will be in the audience at their May meetings in Spanish. All the projects will be bilingual, linguistically appropriate for school and community.

In addition to the environmental justice projects, these youths will participate in an informational campaign on the Zika threat and will conduct educational activities on college preparation and access.

ARISE youth leadership projects, community initiated and supported, are now informed by project based learning. Students will be presenting their work to their schools and teachers for academic credit. Beyond the yearly community service letters ARISE already provides to student volunteers, a new and significant step has been taken to connect with schools and teachers. Educators now validate the substantive skills and knowledge involved in the work students are doing in the community.

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*na High School in Donna ISD. Litzzy Castro is a sophomore at Johnny G. Economedes High school in Edinburg CISD.*



See our photo slideshow with highlights from the students' PBL work

<http://budurl.com/IDRAy17>



Get the "4 Stages of Writing" activity the ARISE students used

<http://budurl.com/IDRA4Stages>

# Libre Software in Education – Affordable Technology that Supports the User’s Freedom

by Mark Barnett

Did you know that a vast proportion of the Internet is built and operated on libre software? You may have never heard the term *libre software* before, but you may have heard of *free and open source software*. Much of what we call the Internet is a series of servers that operate on libre software from Gnu Linux and Apache, among others. The term *libre* means freedom and is a matter of liberty, not price, which is why I prefer the term libre software instead of free software.

Why should you care about software liberty and freedoms in education? Many schools openly use proprietary software from Microsoft, Apple and Google that cost schools thousands of dollars and leave schools with few options in regards to user freedoms, such as data collection, redistribution and licensing. Few schools are aware that there are software options that protect user freedoms.

According to the Free Software Foundation (2016), there are four distinct user freedoms that Libre software can provide.

- The freedom to run the program as you wish, for any purpose (“Freedom 0”).
- The freedom to study how the program works and change it so it does your computing as you wish (“Freedom 1”). Access to the source code is a precondition for this.
- The freedom to distribute copies so you can help your community (“Freedom 2”).
- The freedom to distribute copies of your modified versions to others (“Freedom 3”). By doing this you can give the whole community a chance to benefit from your changes. Access to the source code is a precondition for this.

These freedoms are celebrated by software developers and system administrators but could have a powerful transformation in education. There are two main reasons schools should consider using libre software: (1) the cost; and (2) increased equity. (Learn more at <https://www.gnu.org/philosophy/free-sw.html>.)

## Is Libre Software Free?

Remember that the term libre refers to freedom and not free as in no-cost. However, you will find that many libre software projects are no-cost. Take for example, **LibreOffice**, which is an office suite with a word processor and spreadsheet tool similar to Microsoft Office that is no-cost. Imagine how much money a school could save just by switching to LibreOffice.

There are dozens of libre software projects that are no-cost that can replace expensive software from companies like Adobe and Apple. Another issue with many proprietary software companies is that they create user dependence and lock users into paying ongoing subscription fees. Libre software upholds the value of being open and sharing for the greater good of communities.

## Libre Software Increases Equity

Communities all over the world are using libre software to empower new generations of learners that value the power of software freedom. One example is from a libre software project called **Sugar Labs**, which is a software-development and learning community, that makes a collection of tools that learners use to explore, discover, create and reflect. It distributes these tools freely and encourages its users to appropriate them, taking ownership and responsibility for their learning.

Allowing students to learn about libre software through open exploration can help learners acquire knowledge by giving them tools that make them critics and creators of knowledge instead of just consumers of proprietary software. The real power of libre software is in the freedom that it gives users to learn and explore with a community of supporters that leads towards a culture that values equity over consumption. (Learn more at <https://www.sugarlabs.org>.)

## IDRA Supports Libre Software

In October 2016, IDRA sponsored and planned an event called **Libre Learn Lab** that focused on connecting educators, leaders, software develop-  
(cont. on Page 6)

*Allowing students to learn about libre software through open exploration can help learners acquire knowledge by giving them tools that make them critics and creators of knowledge instead of just consumers of proprietary software.*

(Libre Software in Education, continued from Page 5)

ers and policymakers to the idea of using libre software in K-12 education. The event was held at MIT in Boston and featured keynote presentations from former U.S. Department of Education Open Education Advisor, Andrew Marcinek, and founder of the Free Software Foundation, Richard Stallman. The next Libre Learn Lab will take place in Miami in October 2017 and will focus on connecting educators with libre software, hardware and open education resources. (Learn more at <http://librelearnlab.org>.)

### Resources

Free Software Foundation. (2016). "What is free software?," web page (Boston, Mass.: Free Software Foundation, Inc.). <https://www.gnu.org/philosophy/free-sw.en.html>

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See Mark's TEDx SA speech: "Everyone is a Maker, but Not Everyone has Access" <http://budurl.com/TEDxSAmb16vid>



Get a list of Open Source Tools for Education <http://budurl.com/IDRAost>

## Annual IDRA La Semana del Niño Parent Institute™



### Supporting the Success of Every Student *Apoyando el éxito de cada estudiante*

Bilingual Parent Institute • April 27, 2017

This annual institute offers families, school district personnel and community groups from across the country the opportunity to network, obtain resources and information, and receive training and bilingual materials on IDRA's nationally-recognized research based model for parent leadership in education.

This year's institute, funded in part by the W.K. Kellogg Foundation, will highlight family engagement as it relates to the new *Every Student Succeeds Act* (ESSA), which replaced the *No Child Left Behind Act*.

This institute is interactive and participatory. All presentations are bilingual (English-Spanish).

#### Highlights coming in 2017

- Bilingual presentations on successful family engagement
- Roundtable educational presentations
- Parent interviews
- Breakout sessions on education topics
- Refreshments and lunch
- Exhibitors, including service providers, college and universities and non-profits

#### Event Registration

The fee is \$60 per person (includes presentations, materials, exhibits, refreshments and lunch). For more information, contact Ms. Jocelyn Rivera (e-mail [contact@idra.org](mailto:contact@idra.org); phone 210-444-1710).

#### Details

Date: April 27, 2017  
Time: 9:00 am - 2:00 pm  
Place: Whitley Theological Center, 285 Oblate Drive, San Antonio

“The fact that everybody was engaged, was participating – this is something I don't see in any other conference. [In other conferences], people just go and listen. Here people come to participate to be engaged – that was impressive!”

– previous participant

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<http://budurl.com/IDRALaSemPI>

Also see photos, videos and articles to find out why IDRA's parent institute is so powerful!



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# Instructional Strategies for Building Inferencing Skills



IDRA conducted research on the reading test questions that a high percentage of students miss across grade levels. We found that students were having difficulty with questions that require a high level of proficiency in the underlying and foundational skill of inferencing.

And we looked at the professional development that teachers had received. After an analysis of the topics, we saw a heavy emphasis on pedagogy and little, if any, on strengthening the content that teachers must deliver. Specifically, this means inferencing as the content: what it is, what types of inferences are addressed during instruction and testing, how inferences are foundational skills that affect the curriculum throughout the day, and how to address inferences during instruction.

At the end of these workshops, teachers report being filled with hope that, as one teacher stated, “excites and boosts our efficacy as effective teachers.”

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- Inference as one of the most critical reading skills
- What breaks down in reading for comprehension and interpretation
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- Explicit instruction in context and its effectiveness as an instructional intervention practice
- The critical relationship between background knowledge, vocabulary and inferencing
- The viable practices for accessing background knowledge and cultural experiences of students
- The cognitive benefits of bilingualism
- The types of inference that are traditionally tested on standardized tests
- The critical content knowledge and instructional intervention practices to develop inferencing as a “Habit of Mind”
- Lesson study as a collegial practice
- The power of a collaborative and individualized plan of action



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# See IDRA's New Penny Power Tool

**How strong is your local penny of tax for schools compared to your neighbors across Texas?**

**Penny Power**

As the State of Texas continues to decrease its support of public schools (the State now only covers about 38 percent of the cost), it's important for communities to know how much bang they are getting for their buck from Texas's school finance system.

IDRA's Penny Power shows how much revenue your school district generates for each average penny of tax set by local taxpayers and rank orders 1,018 school districts across Texas.

Search the Penny Power maps to find out where your school district ranks.

<http://budurl.com/IDRApennyP>



*achieving equal educational opportunity for every child through strong public schools that prepare all students to access and succeed in college*