XOs and Differentiation: Improving Reading and Writing through Student Empowerment

Principal: Mary Padilla
School Type: Elementary
Neighborhood: South Bronx
Title I: Yes
Total Enrollment: 585
ELL: 129
Special Ed: 87

Asian or Native Hawaiian/Pacific Islander: American Indian or Alaska Native	0.7% 1.2%
Black or African American	29.9%
Hispanic or Latino	66.8%
White	0.7%

Principal's Vision:

Principal Padilla is committed to using the One Laptop Per Child (OLPC) XO computing model to equip elementary school students with 21st-century skills and to improve literacy. She has delegated a great deal of responsibility to her technology teacher and an education consultant, and with their guidance, has procured specialized educational software to increase student engagement and achievement. The new technology has also helped differentiate learning, and has fostered students' pride in their "professional, published" work. Because XO laptops can "speak" directly to each other through a mesh network, students can ask each other questions and give each other feedback from their seats, thus contributing to a collaborative learning environment.

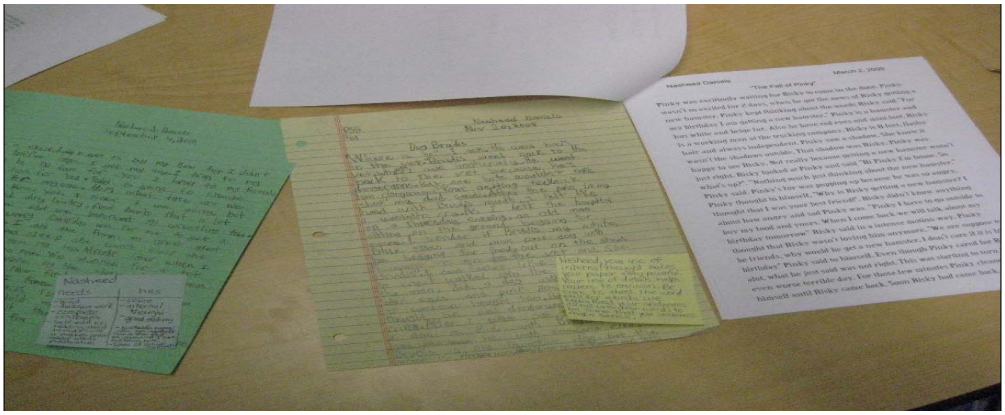
Instructional Goals:

Reinforcing Core Curriculum

To the extent that is appropriate, academic skills are developed through tech mediums such as blogs, audio/video, specialized software, and the Internet. XO laptops (http://laptop.org/en/), which are tailored to children in their software, their durability, and their appearance, are used in every class at PS 5.

Published Writing

In Ms. Cooks's 4th-grade class, students are tasked with writing memoirs. Last year, they wrote their memoirs by hand. With the availability of computers, however, students have not only honed their typing skills, but also write substantially more content. The quality of their writing has improved, as well. Ms. Cooks attributes this success to the pride students feel when they see their work in a "professional" format. In other words, the students become excited when their papers resemble real books. Ms. Scott's 3rd-grade class uses blogs to share their poetry with each other during April's Poetry Month. Working on their laptops, students are able to blog, write, and publish their poems using E-Zine, an online magazine that is part of the Teaching Matters writing curriculum (www.writingmatters.org). Their poems are also posted on the class Web page for peer and public viewing (http://www.ps5x.org/class_profile_view.aspx?id=e311a00e-3716-4c05-b554-6ed7801ed343).



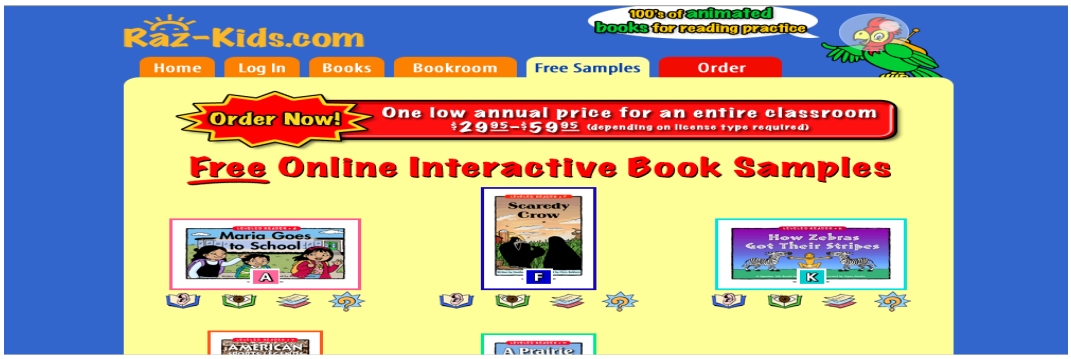
Improved quality of a student's writing throughout the year

Differentiation in Reading

Using a School In Need of Improvement (SINI) grant, Principal Padilla was able to fund new software for her special education classes. It then became apparent that the software would be helpful for other classes, as well. For example, Ms. Quinoñes's bilingual 4th-grade class uses "Online Library Reading," which is available through Raz-Kids software (described below). In a school in which 21 percent of students are ELLs, many classes have a wide range of ability types: Ms. Quinoñes's class includes both ELLs and language proficient students. Technology makes these mixed classes possible because students at different levels can engage in individual activities on their XOs while Ms. Quinoñes facilitates.

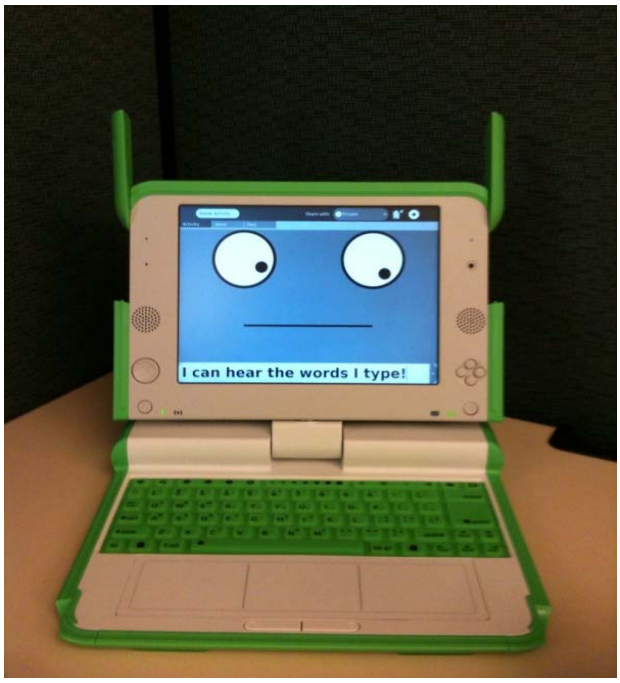
The Raz-Kids software (http://www.raz-kids.com/main/ViewPage/name/sample) allows teachers to directly measure a student's reading comprehension through embedded quizzes and worksheets. This form of interactive instruction captivates students. Typically, language proficient students read independently while following along with the software. At the same time, ELL students sit together with headphones on and use XO Speak, a type of software on the XO laptop that verbalizes any text the student types. The ELL students use XO Speak to work on their pronunciation and spelling. This set-up allows Ms. Quinoñes to sit in the corner and read one-on-one with students who need extra support.

The XO laptops and the choice of "Online Library Reading" helps Ms. Quinoñes differentiate learning and run a more efficient classroom. Ms. Quinoñes's class is a concrete example of how a teacher can address the diverse needs of all students by using learner-centered strategies (Raz-Kids and XO Speak) and providing equitable access to appropriate digital tools and resources.



Raz-Kids Online Library software

ELL Student using headphones and XO Speak to improve pronunciation



In addition to the Raz-Kids online library, the school subscribes to the One More Story library (http://www.onemorestory.com/tour/ontour.html). This program engages multiple learning modalities, as children can have the books in One More Story read aloud to them through the computer as they follow along. They can also mute the sound and turn it on only to hear unfamiliar words.

Other programs used for differentiation in reading are E-Class and Acuity. K-2 teachers use E-Class, an early childhood literacy assessment system that comes with Palm Pilots. The software helps identify students who should be grouped together according to ability level. For upper-grade literacy assessments, teachers use Acuity.

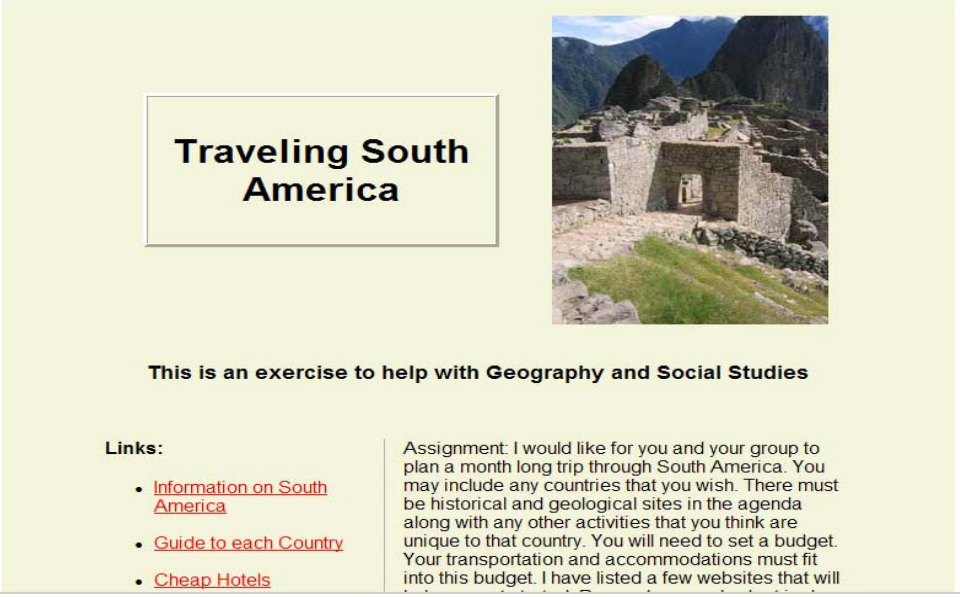
Differentiation in Other Core Subjects

PS 5 uses Renzulli enrichment software in all classes (http://www.renzullilearning.com/default.aspx). With Renzulli, teachers create individual student learning profiles to help them customize instructional activities. Most of the lessons offered through Renzulli are project-based. An example of a Renzulli project for a student interested in science, for example, is “Building Tools to Watch the Weather” (http://www.fi.edu/weather/todo/todo.html).

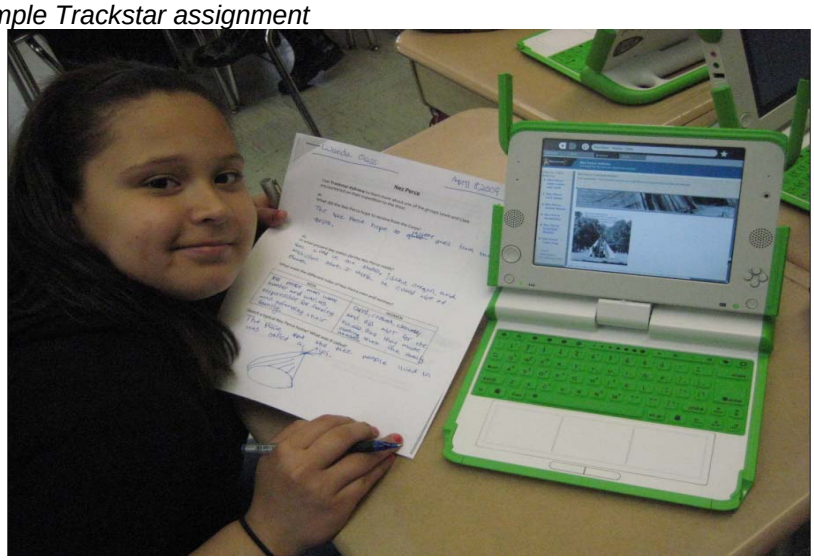
Teaching Internet Research Skills

In Ms. Wannemuehler’s 5th-grade social studies class, students search for Internet content using pseudo-Web sites that their teacher created with Trackstar software (http://trackstar.4teachers.org/trackstar). Trackstar gives teachers a starting point to design an interactive online lesson by allowing them to load content and safely filter the information their students receive. Using Trackstar, teachers can teach their students how to both locate and evaluate online information (Internet literacy) without overwhelming them with too many results or risking exposure to inappropriate content.

Below is a Trackstar sample that combines geography and social studies in an inter-disciplinary assignment. The Trackstar Web site provides step-by-step guidance to teachers who want to create their own tracks: http://trackstar.4teachers.org/trackstar/help/tutorial/making/making.jsp#annot



Sample Trackstar assignment



In addition to Trackstar, on the school's E-Chalk Web site (www.ps5x.org), teachers have individual class pages on which to post Internet resources (e.g. Scholastic Web site). There is also a school library catalog and a Portaportal page that includes additional educational sites approved by the school. One-to-One laptops empower students to seek information rather than wait for it to be delivered to them.

Student Engagement in Test Prep

Students use computer programs such as Acuity and Rally Skills, which make test prep feel more like a novelty and less like drudgery. Principal Padilla has found that students prefer computer software to pencil and paper for these sorts of tasks.

Collaboration and Communication:

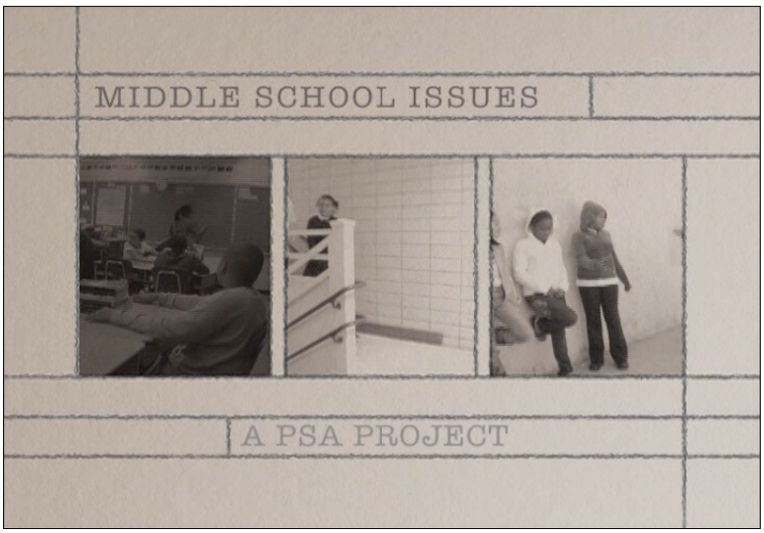
Student Collaboration

Supporting Literacy through Peer Interaction

XOs are connected through a “mesh network,” which allows the computers to “speak” to each other directly via chat and document sharing. There is no need for a third party platform to do this (such as GChat or AIM). This XO feature allows for virtual peer engagement; for example, 2nd- and 5th- graders are paired as reading partners. Students can also look at each other’s writing and engage in peer editing simply by pressing a button that asks for permission to share. Up to four students can type simultaneously on one document, and changes show up immediately (there is no need to forward a document back and forth).

Media Production

During the spring of 2008, Teaching Matters educational consultants teamed up with 5th-grade students to produce five public service announcements. These PSAs covered social issues that middle school students face during adolescence, such as time management, peer pressure, drugs, and alcohol. They are posted on the Teaching Matters Web site.



In addition, students worked with Teaching Matters to research and film a documentary about XO laptops in their school: http://tmicontent.fliggo.com/video/qboUO7Si. These projects involved various learning modalities, and involved both research (for example, the history of the XO program and its founder) and technical expertise (video production).

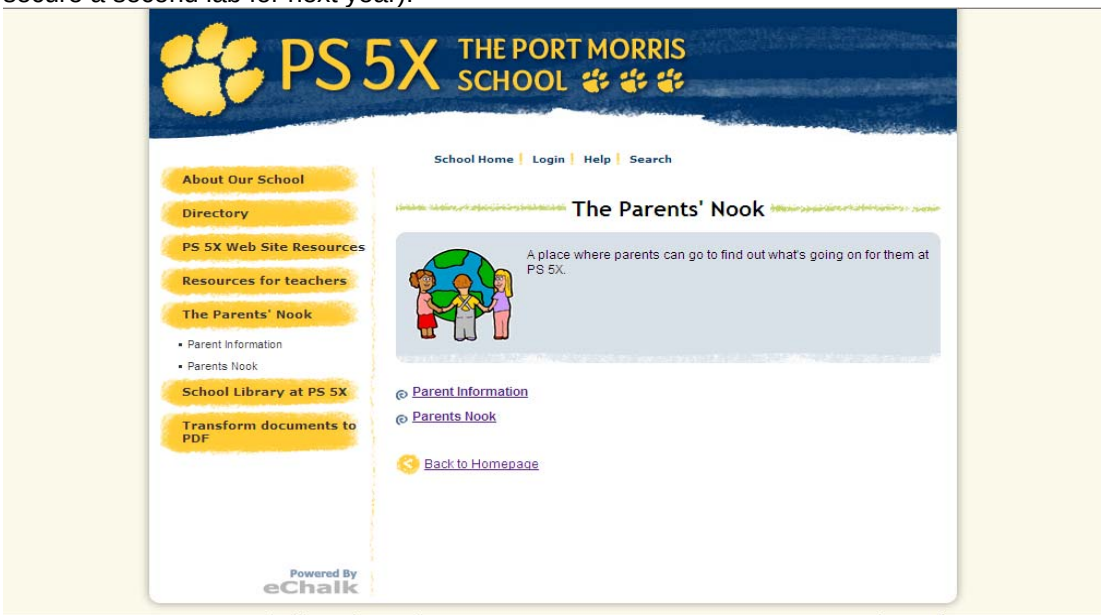
Enrichment

Principal Padilla is committed to allowing students some self-direction in their technology activities. For example, students were surveyed on activities of interest and their responses led to the implementation of various enrichment clubs that take place each Friday during the school day. The enrichment clubs that were created include a movie class, a digital media class, a school newspaper, etc. For many of the enrichment classes, students work in the computer lab (equipped with 25 laptops), using Pixie

(http://www.tech4learning.com/pixie) and Webblender (http://www.tech4learning.com/webblender). Both programs allow students to create multimedia presentations and design Web sites.

Improved Communication with Parents

PS 5's Web site is one avenue used to communicate with parents. However, Principal Padilla recognizes that parents do not frequent the site as much as she would like, since many of them do not have home computers. The Parent Nook of the PS 5 Web site includes reading lists, student-appropriate educational Web sites, and a school calendar. Last year, several parents came in to school to complete the Learning Environment Survey online, and 99 percent of parents filled it out overall. Principal Padilla hopes to host more parent workshops in the computer lab in the future (with Reso-A funding, she has managed to secure a second lab for next year).



Teacher Engagement and Collaboration

Principal Padilla has noticed that teachers are more engaged with their work. With technology, it is difficult for them to deliver off-the-cuff lessons. As a result, they have had to create more detailed lesson plans and put together protocols relating to student computer usage. Teachers frequently share their new ideas with each other during prep periods.

Implementation of Technology:

Staffing Roles Related to Technology

Teacher/Technology Liaison

Lizzette Nunez-Roman provides in-house hardware maintenance support and technology training. She also teaches a technology pull-out class to grades 3, 4, and 5 once a week. Students go to the Mac lab to learn about graphics, video and streaming, and Internet research. Because Ms. Nunez-Roman is familiar with the curriculum, she can align her technology lessons with standards. She also works with Jelbin

Delacruz from Teaching Matters to learn about the various software platforms available for instruction; for example, she goes to conferences with Mr. Delacruz to bring information back to the Principal.

Instructional Technology Consultant

Jelbin Delacruz is a consultant from Teaching Matters (http://www.teachingmatters.org/index.asp). He comes in about once a week (40 days per school year) to help teachers understand the different ways to integrate technology into their instruction. He helps facilitate the "Lunch and Learn" program, which provides teachers with optional professional development opportunities during their lunch periods. Examples of topics include XO refresher courses and Raz Kids training. Principal Padilla budgeted for Mr. Delacruz with school-wide project money that came from PS 5's SINI designation.

Interns

The CUNY tech intern program provides PS 5 with a college student three days per week, for a total of 19 hours. He is paid for out of the school budget. The intern assists the computer teacher in her daily activities. He also re-images the computers so they have the latest OLPC software and conform to DOE standards, and helps with basic troubleshooting problems in the classroom.

Tech Support

Student Tech Squad and Classroom Tech Helpers

The school also has an active student tech squad for the 600 XO laptops: two students from each grade (3rd through 5th) participate in the squad. (They are chosen by Ms. Nunez-Roman and Mr. Delacruz based on interest). These tech squad members assist other students with computer set-up, answer their questions, and provide basic XO maintenance. Although the children are young, Principal Padilla stresses that they know more than some of the teachers do. Teachers also assign one student in every 3rd through 5th-grade class to be the technology helper.

Change Management

Principal Padilla understood that some of her staff members were more resistant to technology than others. One of her change management strategies was to slowly integrate technology into the daily administrative culture. For example, she intentionally sent newsletters via DOE e-mail, so teachers would become more comfortable with e-mail communication. If teachers read the newsletters, they would learn about opportunities for new resources, such as a classroom library. When one teacher acquired new books, other teachers noticed and wanted to get the same for their own classrooms. However, in order to find out about the resource, they had to adapt to the e-mail culture. Principal Padilla's strategy helped to effectively mobilize teachers who were not necessarily experts in technology, but who were enthusiastic to get on board.

One of Principal Padilla's leadership success stories involves teacher buy-in. Ms. Calderon is a 1st-grade teacher who admits to being "tech-challenged." Despite her initial apprehension, she recognized the value of technology for her students. For example, her students had to share a limited number of books. Now the online reading software allows some of them to read the hard copy books and others to read online, which has alleviated the problem of limited resources. In eight months at PS 5, she feels less threatened by technology and is pushing herself to complete an online masters program with the support of Principal Padilla.

Professional Development

Jelbin Delacruz conducts “Lunch and Learn” sessions for teachers. One session involved a representative from EChalk, who helped teachers learn how to make their own class Web sites. After this professional development session, the CUNY intern and the computer teacher followed up with the teachers.

Ms. Nunez-Roman also attends external trainings about once a month, which include Course Management Systems and DOE Workshops. She offers tech training to teachers, students, and sometimes parents once a week in her computer lab based on what she has learned.

Achievement Highlights:

Improved ELA and Math Test Scores

PS 5 has shown large gains in both ELA and Math since the implementation of the OLPC program in 2008.

ELA: Percentage of Students Receiving 3 and 4

Grade	2007-08 (Pre-OLPC)	2008-09 (OLPC)	Change
3	51.9	70.2	+18.3
5	51.9	77.1	+25.2

Math: Percentage of Students Receiving 3 and 4

Grade	2007-08 (Pre-OLPC)	2008-09 (OLPC)	Change
3	89	98	+9
5	70	83	+13

Improved Student Attendance and Behavior

PS 5’s OLPC computing environment is disciplined, yet fun. According to Ms. Padilla, students understand that their school was specially selected to get laptops, and are therefore respectful of them. Students have also shown increased levels of cooperation with their peers and teachers. Two years ago, the school reported 200 occurrences of behavior problems. This year, the number has dropped to less than 150. The school has also met its attendance goal of 93 percent.

Contact Information:

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