



# Stories of Excellence



Case Studies of  
Exemplary Teaching  
and Learning  
with Technology



NATIONAL ASSOCIATION OF INDEPENDENT SCHOOLS



*“Storytelling can open our perspectives  
to more brilliant possibilities.”*

Susan O’Halloran

# Introduction

By **Jenifer Fox**, Author, Founder of Strengths Movement  
in Schools, and Former Head of Purnell School

The need for change in our schools’ curriculum is no longer debatable. For students to succeed in the 21st century, the curriculum must focus on the technological world. We must help students develop the skills necessary to think critically, solve problems, and make informed decisions.

Technology has become the new literacy for young people. Through it, they learn to collaborate in a global community. It is this global community—and our students’ need to successfully participate in it—that inspired this report showcasing exemplary technology programs and the schools that implement them.

The 21st century demands that we fully and seamlessly integrate technology into our curricular goals. Our curriculum will be most successful when it incorporates a variety of learning styles and embraces a variety of student strengths. Above all, the curriculum connects students to the real world and engages them in authentic and creative experiences that teach them to think critically, solve problems with innovation, and connect to the communities that call upon them to make contributions. Each of the stories of excellence in this booklet accomplishes these goals.

Furthermore, all the schools from which these stories originate have shared strategies for successfully implementing these projects — strategies that are perhaps unique to independent schools. Each school has as part of its mission a commitment to student-centered learning, diversity and inclusiveness, the development of creative thinkers, and the use of technology to prepare students for life beyond school. Each school strives to educate the whole child, provide rich authentic experiences, and honor students' learning styles in pursuit of excellence.

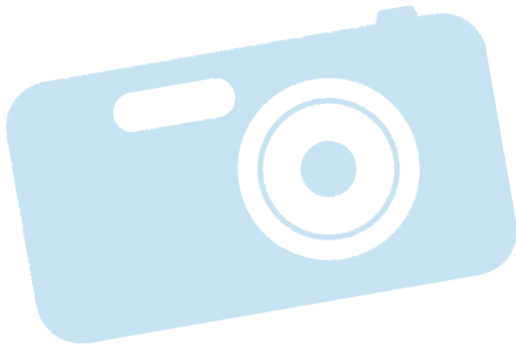
These stories of excellence are intended to serve as models to inspire other schools and teachers to create their own programs and join in the unfolding story of how schools are keeping pace with the changes occurring in society and in our students' lives. The stories should encourage independent school teachers and administrators to get online and begin to discover in earnest the plethora of creative, project-centered, and collaborative curricular initiatives taking place all over the world. Once you do that, you will see that the stories in this report are not simply models; they represent imperatives for student success.

The NAIS 21st Century Curriculum/Technology Task Force sees these case studies not only as examples of what individual teachers should be doing in their classrooms but as windows into the organizational and cultural adjustments independent schools need to make in order to support evolving curriculum. The world will not wait for us, and the students we teach will not either. The time for these stories is now.

# Case Study #1

## THE PROJECT

### Building Bridges: Global Perspectives Meet Literary Classics



## THE SCHOOL

St. Mary's Episcopal School

Girls, Day School, Grade Levels: PK-12

Total Enrollment: 865 students

60 Perkins Extended

Memphis, TN 38111

901-537-1472

[www.stmarysschool.org](http://www.stmarysschool.org)

### Technology involved:

- Image databases Corbis and AP Photo Archive
- United Streaming
- Digital cameras
- Computer applications: iMovie, iPhoto, iTunes, GarageBand, iDVD

## Summary

This project, a yearly assignment for 10th-grade girls, merges the study of *The Grapes of Wrath*, Ralph Waldo Emerson, Frederick Douglass, Emma Lazarus, and Mark Twain with a visual demonstration connecting literature to history. Students explore the universal experience of man's displacement in literature and in the current global community. They collaborate, research, analyze, and evaluate information while creating a digital documentary on a designated theme.

In the classroom, the teacher takes students through the script-writing process. Guided by the history curriculum and the novel study of *The Grapes of Wrath*, students work in groups of three to develop a movie script. Once the script is finished and approved by the English teacher, the students spend approximately three days in the library gathering images from Corbis and AP Photo Archive as well as movie clips from United Streaming. All image and movie clips are stored in group folders

on the student server. Next, students spend two weeks developing their movies in the computer lab. They record scripts, sequence pictures and movie clips, and add appropriate music to create a sense of mood and tone. When their project is finished, the girls export their movies and burn their production as a DVD. As a culminating event, the students participate in a movie award ceremony. Parents are invited and serve as the audience for movie screenings. Each movie receives a distinct award based on the characteristics of its production.

This project is now highly developed due to the continued reflection and evaluation of the classroom teacher and her cooperation with the technology coordinator and librarians. The teacher provides content expectations while the technology coordinator provides equipment, application training, and general organizational strategies. The librarians assist the girls in using the school's extensive online databases and other resources.

### **Requirements**

The school needs video cameras and subscriptions to image databases. In this case, St. Mary's has both, so the project did not involve an additional cost.

### **Resources**

- AP Photo Archive:  
*<http://www.apimages.com/Index.aspx?ReturnUrl=%2fdefault.aspx>*
- United Streaming: *<http://streaming.discoveryeducation.com/>*
- Corbis: *<http://pro.corbis.com>*

### **Teachers**

Melissa Cole, Director of Academic Technology: *[mcole@stmarysschool.org](mailto:mcole@stmarysschool.org)*  
Leigh Mansberg, AP English 10 Teacher: *[lmansberg@stmarysschool.org](mailto:lmansberg@stmarysschool.org)*

# Case Study #2



## THE PROJECT

# Community Service Projects

## THE SCHOOL

### Seattle Country Day School

Coeducational, Day School, Grade Levels: K-8

Total Enrollment: 325 students

2619 Fourth Avenue North

Seattle, WA 98109

206-284-6220

[www.seattlecountryday.org](http://www.seattlecountryday.org)

### Technology involved:

- Professional-level media creation tools such as Photoshop, Flash, InDesign, Final Cut, Dreamweaver, Office, SketchUp, and Cinema 4D

## Summary

In this eighth-grade community service class, each student works individually or in a team to develop a technology-based project that serves the needs of a specific client and audience. Clients are local or global organizations, and projects must fulfill a need that the clients are unlikely to meet due to financial or logistical constraints. Building on middle school students' desire to make a genuine impact on the world, this class develops practical technology applications that reach and serve real audiences. Students complete their projects in six to eight weeks.

Students work as producers in video, print, web, animation, and audio. To begin the project, students discuss the scope of the project with their client and write a proposal to the teacher outlining how the student producer and client will collaborate. Upon approval of the proposal, the teacher acts as a technical adviser, encouraging a high level of production quality, suggesting solutions to problems, and offering effective communication strategies for the collaborative relationship.

This class develops and produces a multitude of community service projects. These have included:

- Updating and streamlining a senior home's website
- Creating videos that orient elementary-age students to the challenges of middle school
- Remaking a classic film for a senior-citizen entertainment program
- Developing brochures and videos that demonstrate key physical education techniques such as skiing, juggling, and Ultimate Frisbee
- Developing nutrition education videos that demonstrate meal preparation ideas
- Producing introductory animations for small-business websites
- Organizing and typesetting a collection of children's literature
- Producing a multi-camera shoot for a student music-video project
- Filming, editing, and archiving lectures by guest speakers
- Editing and publishing a web-based instructional video for veterinarians
- Organizing and implementing online surveys and data collection

As students complete their projects, they develop a deep sense of accomplishment and see the relevance of their schoolwork to eventual career choices. The projects give them real-life lessons in coping with adversity, working creatively within constraints, maintaining a high level of excellence, and communicating effectively with remote audiences. Students develop so much enthusiasm and pride for their projects that they often work on them during lunch breaks, after school, and on weekends. As consultants and resident experts, they develop and stretch the boundaries of their emerging relationships with adults.

### **Requirements**

Schools need computers with DVD burners, video cameras, microphones (handheld, shotgun, wireless, or USB), headphones, tripods and other camera support, still cameras, light kits, green screen, jib arm, auxiliary video monitor, clacker slate, storyboarding sheets, battery chargers, and software such as Final Cut (video editing), Adobe Creative Suite (image manipulation, design, and 2D animation), MS Office, Apple iWork, Cinema 4D (3D animation), Audacity and iTunes (audio production), and conversion utilities for video (MPEG2 to DV). The class can be adapted for use with different levels of multimedia and web expertise and different grade levels.

## Resources

- Photoshop, Flash, InDesign, and Dreamweaver: [www.adobe.com](http://www.adobe.com).
- Cinema 4D: [maxon.net](http://maxon.net)
- Final Cut: [www.apple.com](http://www.apple.com)
- Google SketchUp: [sketchup.google.com](http://sketchup.google.com)
- MS Office: [www.microsoft.com](http://www.microsoft.com)

## Teacher

Ethan Delavan, Middle School Technology Teacher:  
[ethandelavan@seattlecountryday.org](mailto:ethandelavan@seattlecountryday.org)

# Case Study #3



## THE PROJECT

# Dig This!

## THE SCHOOL

### Phillips Academy

Coeducational, Boarding School,

Grade Levels: 9-Postgraduate

Total Enrollment: 1,190 students

180 Main Street

Andover, MA 01810

978-749-4000

[www.andover.edu](http://www.andover.edu)

### Technology involved:

- Multimedia tools such as video, wikis, PowerPoint, audio files, and still images

## Summary

Taught by a team of teachers, “Dig This!” is a collaborative, interdisciplinary summer course featuring hands-on archaeology, Native American history, and essential information and communication technology skills. The course lasts five weeks and meets six days a week for up to six hours per day.

Based at the Robert S. Peabody Museum of Archaeology, students work with the teaching team to uncover the history of Early American civilization during the period of encounter and conflict. Making use of the museum’s collection of more than 500,000 artifacts, students handle and investigate artifacts directly related to course content. Students also receive training in the methods, concepts, and terminology of historical archaeologists, anthropologists, and historians and become archaeologists through frequent excursions to a working dig at the Rebecca Nurse Homestead.

Students develop information literacy skills as they examine, describe, categorize, and make inferences about artifacts. They practice drawing and testing conclusions regarding unknown objects and generating solutions to questions raised by articles of material culture. The class examines a supposedly unfamiliar culture and learns to identify analogous situations in their own culture and apply those insights to subsequent considerations of cultural groups. They are challenged to ask critical questions, identify the information needed to answer those questions, and match needs with appropriate source types.

Students learn how to retrieve information in print and electronic formats and how to evaluate the credibility of information sources. They develop multimedia and imaging skills as they work collaboratively to create and edit a class wiki. As a final project, each student crafts a higher-order critical question and researches, develops, and produces a movie, PowerPoint, or wiki presentation, which is then shown to the entire class.

### **Requirements**

Schools need computers with Internet connections to allow students access to online sites such as *www.trails9.org*, Flickr, YouTube, Wordpress, and Wikispaces. The main expense is for field trips; the original program took between one and two field trips a week to places such as archaeological digs and archaeological museums. If these are unavailable, another program could replicate this experience by doing a “backyard dig” as long as it was possible to pull in some graduate students to help.

### **Resources**

- Robert S. Peabody Museum of Archaeology:  
*www.andover.edu/museums/museumofarchaeology*
- Wikis: *www.pbwiki.com*, *wikispaces.net*
- PowerPoint: *www.microsoft.com*

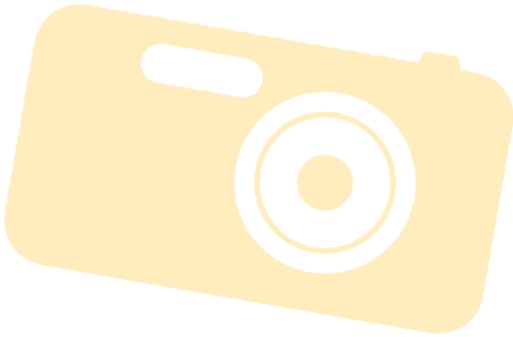
### **Teachers**

Elisabeth Tully, Director of the Library: *etully@andover.edu*

Charlie Newhall, Department of History, St. John's Prep, Danvers, MA:  
*cnewhall@stjohnsprep.org*

This program is assisted by the staff of the Peabody Museum of Archaeology on Andover's campus, and by faculty and students in the Archaeology Department of the University of Southern Maine.

## Case Study #4



### THE PROJECT

## Energy Awareness and Conservation Through High- and Low-Tech Means

### THE SCHOOL

St. Richard's School

Coeducational, Day School, Grade Levels: PK-8

Total Enrollment: 350 students

33 E. 33rd Street

Indianapolis, IN 46205

317-926-0425

[www.strichardsschool.org](http://www.strichardsschool.org)

### Technology involved:

- Thermographic camera

### Summary

Fifth-grade teacher Peter Connallon's goal with this unit is to empower his students with the confidence and skills to decrease energy consumption in the community around them. Key to the project is the rental of a thermographic camera, a device that detects heat (infrared energy) and converts it to an electronic signal that is then converted to a multicolored image for view on a video monitor. Variations of color in the final image show how hot or cold particular areas of a subject are. Thermographic cameras can be used in a wide variety of medical and research applications as well as search and rescue operations and engineering. Energy conservation, because it focuses on the loss of heat, is an excellent subject to explore with this device. The project moves students from awareness to action, first on their campus, then to the community at large, and finally to their own homes.

The teacher begins by showing a PowerPoint presentation on the energy benefits of replacing incandescent light bulbs with compact fluorescent light bulbs (CFL). Students then create scale drawings of St. Richard's campus, locating then adding weather stripping to each exterior door. Classroom discussions on phantom load and energy conservation continue during this time as local utility companies, contacted beforehand, monitor and share energy consumption for a three-month period. The class notes a significant (\$3,200) cost savings compared to the previous year.

The project enters its main phase with the class using a thermographic camera to identify heat loss in community homes over the camera's weeklong rental period. The class distributes an informational brochure to school and parish families and then arranges appointment times. The teacher accompanies two to three students on each home visit, where students take about six thermographic photos per visit. Students upload the photos and create reports with photos and suggestions on where loss is occurring and how to reduce heat loss and energy costs.

Finally, students photograph parts of their own homes using the thermographic camera. When heat loss is found, students are able to make some small fixes, such as placing foam inserts around receptacle faceplates.

As the title of this project implies, this unit employs some low-tech solutions that are inexpensive and easy to implement. The purchase of weather stripping and work with local utilities could be conducted as a separate lesson with minimal cost and classroom time. St. Richard's reports that in 2008, the renting of a thermographic camera for one week cost the school \$495. In addition, computer use by students or teachers need not be in a one-to-one setting. Uploading photos or creating reports could be done either on a few classroom computers (or even one computer) or in a lab setting or a laptop environment. Any word-processing software (as well as presentation software for the initial slide show to the school) would also work.

### **Requirements**

Students need weather stripping for the external doors of each house and a thermographic camera, preferably a rental since they are rather expensive.

## Resources

- U.S. Department of Energy: Energy Efficiency and Renewable Energy:  
*[apps1.eere.energy.gov/education/lessonplans/plan.cfm/lpid=206](https://apps1.eere.energy.gov/education/lessonplans/plan.cfm/lpid=206)*
- EnergyQuest Saving Energy:  
*[www.energyquest.ca.gov/saving\\_energy/index.html](http://www.energyquest.ca.gov/saving_energy/index.html)*
- Metaefficient—The Guide to Highly Efficient Things:  
*[www.metaefficient.com](http://www.metaefficient.com)*

## Teacher:

Peter Connallon, Fifth-Grade Teacher: *[pconnallon@strichardsschool.org](mailto:pconnallon@strichardsschool.org)*

## Case Study #5

### THE PROJECT

# The Energy Story: Three Years of Making Movies About Sustainability

### THE SCHOOL

Ecole Bilingue de Berkeley

Coeducational, Day School, Grade Levels: PK-8

Total Enrollment: 531 students

1009 Heinz Avenue

Berkeley, CA 94710

510-549-3867

[www.eb.org](http://www.eb.org)

#### Technology involved:

- Handheld camcorders
- Apple computers
- iMovie software for video editing

### Summary

Small teams of students in grades six through eight plan, shoot, and edit video to educate and inspire others with stories about alternative energy sources, the devastating effects of pollution and global warming, and the importance of building a vision for a sustainable future.

Year one of the project focuses on the theme of alternative energy sources, including hydroelectric, solar, geothermal, biofuel, and wind. Students and teachers take field trips to visit dams, landfills, and geothermal plants. They also interview representatives from local organizations concerned with alternative energy sources. As the movie takes shape, students and teachers realize that video-composing and editing skills are crucial to the project's success, as are good research, planning, and time-management skills.

Year two focuses on global warming and pollution from mercury, smog, and acid rain. Students interview local business executives, citizens,

and air-quality experts. After screening the new movie, students work with their peers and other teachers to build awareness and create action plans.

Year three begins with a critique of the first two movies and uses them as a springboard for the next movie. Students and teachers move on to the more abstract idea of envisioning a sustainable future. This movie is divided into five chapters: scientists, green architects and builders, green entrepreneurs, green policy makers, and students and educators. Again, local experts from the Berkeley community are interviewed along with members of the school community.

This project has not only educated and informed the school community but has also sparked an ongoing discussion about how to address sustainability over the long term. Teachers recognize that projects have a certain window of time in which they can be most effective; as rapid advances are made in the science of sustainability, students are engaged in active reflection about how they can keep their communities current in the face of such rapid change.

### **Requirements**

Teachers and students need familiarity with camcorder operation and filming techniques as well as the video- and sound-editing skills necessary to use the iMovie editing program.

### **Resources**

- The Energy Project movies can be viewed online at:  
[www.eb.org/EBnet/05-06/idd.html](http://www.eb.org/EBnet/05-06/idd.html)

### **Teacher**

Susan Campbell, English Teacher: [scampbell@eb.org](mailto:scampbell@eb.org)

# Case Study #6

## THE PROJECT

# Exploring Physics through Cognitive Computing and Modeling

## THE SCHOOL

### Greenhill School

Coeducational, Day School, Grade Levels: PK-12

Total Enrollment: 1,250 students

4141 Spring Valley Road

Addison, TX 75001

972-628-5400

[www.greenhill.org](http://www.greenhill.org)

### Technology involved:

- VPython, a free, open-source programming suite that includes the Python programming language, the IDLE interactive development environment, the Visual module that provides 3D output, and Numeric, a module for fast processing of arrays.
- YouTube

## Summary

One way technology can transform learning is by extending the learner's cognitive capabilities. In physics, for example, students explore concepts that are theoretical or impossible to test or visualize in the real world. By using computers to represent mental models that can be manipulated dynamically, students can act on the model, analyze and interpret the results, and refine the model to produce an accurate representation of a process that may otherwise remain inaccessible within the boundaries of human cognition.

At Greenhill, AP physics teacher Nicholas Park incorporates aspects of cognitive computing throughout his curriculum. Using an open-source application called VPython that produces real-time 3D images using the Python scripting language, he and his students tackle difficult theoretical problems.

The teacher models the learning and modeling process as the “more expert learner” in the classroom. Working from ill-defined problems, the students develop working mental models that can then be tested in simple computer programs.

In one example, students respond to this teacher prompt: “Compute the electric field surrounding a very large, thin sheet of charge, and display a representative set of electric field vectors.”

The students’ work not only solidifies their understanding of abstract content but also embodies the current approach of bench scientists doing physics research. It also provides concrete evidence of student learning for student portfolios and other assessments.

### Requirements

Students need a basic understanding of the VPython suite and sufficient computing power to run it. Open-source software is non-proprietary software written, improved, and debugged by anyone with the skill and interest in doing so. No one owns it, and the code that makes it work is freely available. Students also need high-speed Internet access for operating YouTube.

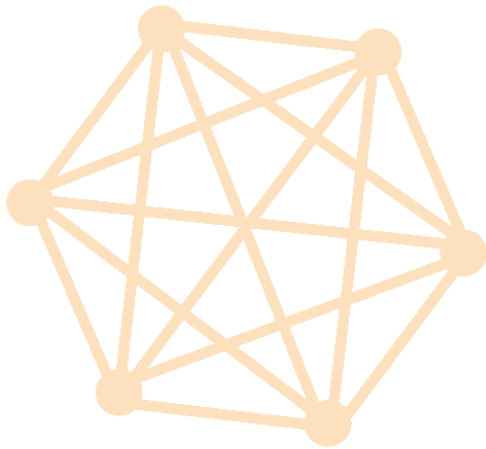
### Resources

- VPython: [www.vpython.org](http://www.vpython.org)
- YouTube: [www.youtube.com](http://www.youtube.com)
- Example of the students’ work on YouTube:  
[http://www.youtube.com/watch?v=JEjr-\\_IWBDU](http://www.youtube.com/watch?v=JEjr-_IWBDU)

### Teacher

Nicholas Park, AP Physics Teacher: [parkn@greenhill.org](mailto:parkn@greenhill.org)

# Case Study #7



## THE PROJECT

# Facebook, Murder, and the Passé Composé

## THE SCHOOL

### Collegiate School

Coeducational, Day School, Grade Levels: K-12

Total Enrollment: 1,554 students

103 North Mooreland Road

Richmond, VA 23229

804-740-7077

[www.collegiate-va.org](http://www.collegiate-va.org)

### Technology involved:

- Facebook
- Videoconferencing tools

## Summary

Combining elements of a murder mystery with language and social studies, this yearlong French course focuses on imperfect and past perfect verb tenses. Students create alter-ego characters that live in an apartment building in France. These wild characters encounter suspicious activities that eventually lead to a murder in their apartment building. The murder can only be solved through the analysis of clues and the correct use of imperfect and past perfect tenses.

Students use Facebook, videoconferencing with people in France, and forensics tools to solve the murder mystery. Students upload photos of their characters, pets, cars, childhood homes, and other images on a Facebook site. They also “visit” each other, read each other’s compositions, upload compositions to their writing portfolios, and send each other comments on Facebook.

Students interact with an instructor who lives in France and acts as the superintendent of their apartment building. Videoconferencing and e-mail support this relationship. For example, while studying a unit on the kitchen, students can e-mail the superintendent about problems with their faucets. While studying a unit on driving, students use videoconferencing to talk to the superintendent's teenage son about French driving tests and requirements.

A chemistry teacher assists the French teacher and her class with forensics experiments such as conducting a DNA analysis of gum left at the crime scene, hair analysis, and fingerprint analysis. The chemistry lab is used for these forensics investigations.

Integrating an intriguing story line with verb tenses and technology tools keeps students engaged in the development of language skills. After the course ends, students have the opportunity to travel to France and visit the superintendent and her family and tour the actual town and apartment building they inhabited online.

### **Requirements**

Students need a laptop with a flipcam, Internet access, a copy of the textbook for the superintendent in France, videoconferencing capabilities, the use of a social networking platform such as Facebook or Ning, and access to a chemistry lab.

This course also requires a co-instructor in France. The teacher and students need videoconferencing and social-networking platform skills. The teacher in charge of this project could collaborate with a chemistry teacher to carry out forensic experiments such as:

- Investigating a mass of chewing gum left at the crime scene to discover the sugar content in the gum;
- Fake DNA analysis from gum left at the crime scene;
- Bite analysis of an apple left at the scene and comparison with suspects' bites;
- Hair analysis of evidence left at the crime scene and comparison to hairs from suspects for length, straightness, color, and appearance under a microscope;
- Density measurements of metal dust found in suspects' clothes and at the crime scene where window bars were filed away;
- Paper chromatography on a ransom note left at the crime scene and a comparison to pens taken from suspects;

- Swabs taken from inside the cheeks of suspects and DNA analysis by electrophoresis (The participants faked the results of this test but talked about how they would conduct the experiment with the students and showed them how to read the data.);
- Analysis of fingerprints left on a fake gun/glass at the crime scene and comparison with suspects' prints taken during interviews. Prints were developed on evidence by using Superglue in a closed container.

### Resources

- Facebook: [www.facebook.com](http://www.facebook.com)
- Ning: [www.ning.com](http://www.ning.com)

### Teacher

Valencia Siff, French Department Chair and Teacher:  
[vsiff@collegiate-va.org](mailto:vsiff@collegiate-va.org)

## Case Study #8



### THE PROJECT

## Fixing Your Gaze, Finding Your Voice: Podcasts and Service Learning in Art History

### THE SCHOOL

#### The Holton-Arms School

Girls, Day School, Grade Levels: 3-12

Total Enrollment: 644

7303 River Road

Bethesda, MD 20817-4697

301-365-5300

[www.holton-arms.edu](http://www.holton-arms.edu)

#### Technology involved:

- Podcasting software such as GarageBand or Audacity

### Summary

This program is a collaboration between the upper-school Advanced Placement Art History class and the Education Office of the Smithsonian American Art Museum (Washington, DC). After a six-week period of research and writing, students create podcasts about works of art in the museum's collection.

Each student selects a work of art and then conducts research, using the school's library and subscription databases such as JSTOR. She then develops a text that is firmly grounded in art historical methodology — considering issues of style, content, and historical context — and simultaneously expresses strong personal voice. Once the research and writing are complete, the student records her text as a 90-second podcast that can take the form of an original argument, a personal reflection, or an imaginary narrative by some character inside or outside the painting.

The choice of approach is up to each student. A jury of Smithsonian staff evaluates the podcasts and selects several for inclusion on the museum's website.

Each year the "Fixing Your Gaze" project focuses on a specific theme that guides the students in their selection of a painting or sculpture to research. One past theme was "Representations of Femininity in Art," which allowed students to investigate portrayals of women and consider ways that works of art empower or fail to empower their female subjects. Another was "Nature and Art in America," for which students explored depictions of the natural world such as Hudson River School landscapes. They worked to connect each image with the political, religious, and scientific ideology of the time in which it was created. Students also reflected on the potential wisdom or warning that the image offers to 21st-century viewers about their own relationship to the environment.

The theme of the 2008-2009 academic year is works of art by African-American painters and sculptors. Students will address the following questions: In what ways does the work of art reflect or challenge the values of the period in which it was produced? Is it rooted in a distinctively African-American cultural experience? How is it similar to and/or different from works of art created by white artists of the same period? How do ideas about race intersect with notions of gender in this piece? What does the work reveal about the aspirations of the artist who created it?

Additionally, "Fixing Your Gaze" has a service-learning component. The upper-school students act as mentors to fifth-grade students from Seaton Elementary School in Washington, DC, an inner-city public school.

Both schools visit the museum on the same day. The upper-school students from Holton-Arms form small groups with the fifth-grade Seaton students in order to explore the works of art together. This session includes time for the Seaton students to begin writing their own podcast texts about a favorite work of art. Following the museum visit, Seaton students visit Holton-Arms and work again with the upper-school students to learn how to record podcasts. At the end of the day, each Seaton student takes home a CD of his or her podcast.

This program is a win-win situation for both sets of students: The younger students are delighted to have their own interpretations of

works of art validated by upper-school students; the Holton girls, in turn, put their art historical knowledge and skills to good use in helping younger children understand and better appreciate art.

### **Requirements**

Students need a computer equipped with a sound-recording program such as Audacity or Garage Band, a microphone, compact discs, access to art history books and subscription databases, and a relationship with a partner school and nearby museum.

### **Resources**

- Podcasts by Holton-Arms students on the Smithsonian American Art Museum website: [americanart.si.edu/interact/podcasts/holton/index.cfm](http://americanart.si.edu/interact/podcasts/holton/index.cfm)
- Articles about the project: [www.washingtonpost.com/wp-dyn/content/article/2007/03/21/AR2007032101135.html](http://www.washingtonpost.com/wp-dyn/content/article/2007/03/21/AR2007032101135.html)  
[www.gazette.net/stories/040908/kensnew210745\\_32375.shtml](http://www.gazette.net/stories/040908/kensnew210745_32375.shtml)

### **Teachers**

Christopher Wilson, History and Art History Teacher:  
[christopher.wilson@holton-arms.edu](mailto:christopher.wilson@holton-arms.edu)

Brad Rathgeber, Director of Technology: [brad.rathgeber@holton-arms.edu](mailto:brad.rathgeber@holton-arms.edu)

# Case Study #9



## THE PROJECT

# Global Classroom Sessions

## THE SCHOOL

### Sewickley Academy

Coeducational, Day School, Grade Levels: PK-12

Total Enrollment: 800 students

315 Academy Avenue

Sewickley, PA 15143

412-741-2230

[www.sewickley.org](http://www.sewickley.org)

### Technology involved:

- Videoconferencing tools

## Summary

“Global Classroom Sessions” is a high school project that encourages global communication, dialog, friendships, and collaboration. This particular project was created in a world literature class and focused on language, music, performance, and literary themes. The project can be adapted for other subjects and other grade levels. Key outcomes of this project include real-time conversations, shared meals, and performances with students in another country.

Before hosting a global classroom session, it is helpful to develop skills in using the global videophone and to test the technology’s capabilities by holding several test sessions. Test sessions could include a videoconference with one of your school’s teachers while the teacher is at another location or a simple videoconference meeting where students at different locations talk to each other.

Sewickley Academy's Abyss Class first tested the videoconference system with a teacher who was attending a conference in a different state. While at different locations, the teacher and the class discussed various topics. This test session was a huge success and built excitement for expanding the reach of videoconferencing sessions to Sewickley's sister school—the Wuhan School in China.

Next, the class set up a shared meal with the Wuhan School. Working around time differences, Sewickley students ate breakfast while Wuhan students ate dinner. The students enjoyed taking turns describing their meals. These were excellent ways to learn and test the videoconference system, and the shared meal set a lighthearted, friendly tone for the next sessions.

The sessions progressed to a shared musical performance where a Sewickley student rock band performed “All Along the Watchtower” and “American Girl” and Wuhan students sang Chinese songs. The global classroom meetings culminated in a session devoted to literary themes in which Sewickley and Wuhan students read and discussed excerpts from *Harry Potter* and *The Unhappy Officer*. From the small beginnings of a test pilot session between a teacher and a group of students, this project grew to become a platform for collaboration and dialog among students across the globe.

### Requirements

Schools need videoconferencing equipment and knowledge of how to use it. As in this case study, teachers and students can take a “learn as you go” approach as they progress from simple to more complex videoconferencing meetings.

The project also requires a desktop computer with a high-speed Internet connection, Windows XP, and 2GB RAM; an LCD projector; a webcam; and a microphone. Apple and other platforms with videoconferencing capabilities could also be used.

### Resources

- Articles about Sewickley's projects:  
<http://www.sewickley.org/news.asp?type=1&jump=x>  
<http://www.sewickley.org/~lconnolly/GlobalClassroomDocumentary.wmv>  
[http://www.sewickley.org/~lconnolly/Global\\_Class\\_Poetry.wmv](http://www.sewickley.org/~lconnolly/Global_Class_Poetry.wmv)  
<http://roots.wadat.ae/rootsipedia/files/9/90/SSsummer2007.pdf>

- Articles about other schools' uses of teleconferencing:  
<http://www.video-conferencing-guide.com/video-teleconferencing-schools.htm/>  
<http://www.toacorn.com/News/2003/0508/Community/014.html>

**Teacher:**

Lawrence Connolly, English Teacher: [lconnolly@sewickley.org](mailto:lconnolly@sewickley.org)

Joan Cucinotta, English Teacher: [jcucinotta@sewickley.org](mailto:jcucinotta@sewickley.org)

Beau Blaser, Director of Technology: [bblaser@sewickley.org](mailto:bblaser@sewickley.org)

# Case Study #10

## THE PROJECT

# Science/Technology Integration Project

## THE SCHOOL

### Marymount School

Girls, Day School, Grade Levels: PK-12

Total Enrollment: 555 students

1026 Fifth Avenue

New York City, NY 10028

212-744-4486

[www.marymount.k12.ny.us](http://www.marymount.k12.ny.us)

### Technology involved:

- Multimedia tools such as iTunes, iPhoto, Quicktime, KidPix, PhysicsCastIn, Audacity, SoundStudio, and PhotoShop

## Summary

Students at Marymount School benefit from an engaging and comprehensive science curriculum that combines science, technology, and multimedia as early as kindergarten. Technology staff and science teachers work side by side in developing and implementing each project.

In one lesson taken from Class 1 (first grade), students use the Internet to research the different sounds animals make and compare how different cultures associate different sounds to the same animal. Each student then draws an animal using KidPix software and records that animal's sound using SoundStudio.

Similarly, by Class V (fifth grade), students are using SoundStudio and Photoshop to create a commercial for each of the elements from the periodic table. Other programs used for this lesson include iTunes, iPhoto, and Quicktime/QT Pro.

When they reach upper school, students learn through innovative projects in chemistry and physics classrooms. Flash animation of chemical reactions and gas laws in the real world help students learn about scientific processes as well as remediate and assess when appropriate.

One project involves integrating science into the social justice curriculum as students are asked to improve society in a small or large way using physics. Students must research a problem, such as inadequate water supplies in developing countries, and then determine a solution, create an action plan, and produce a four-minute video overview of the project. Flash, Keynote, PhotoShop, and iMovie are used in this activity.

In upper-level classes, podcasting—audio recordings, often serial, that are shared online—helps make conceptual material come alive for students. In “PhysicsCasts,” students discuss real-life applications of physics concepts, and in “Weekend WeatherCasts” students create and record weather forecasts for both New York City and Los Angeles.

Two crucial keys to the success of all these projects are the collaboration between technology staff and science instructors as well as the continued “pushing of the envelope” toward the most current technology and multimedia tools. While many of the activities rely upon Mac-specific software such as iPhoto, all lessons can be easily replicated with open-source or multiplatform programs. The lower the ratio of students per computer, the more quickly any of these programs can be replicated, but that does not preclude adapting any of them for a one-computer classroom or lab setting. Even mobile phones can be used to podcast if the availability of computers is a problem.

## Requirements

While this program was set up using Apple computers and software, it could also be set up using Windows or other platforms. Marymount uses the following equipment:

### Hardware

- Classroom set (20) of MacBooks
- Digital video camera
- USB Microphone

## Software

- Sound Studio
- Adobe Creative Suite 3 (Flash, Dreamweaver, PhotoShop, ImageReady)
- Audacity
- iMovie or Final Cut Express
- iLife (iPhoto, GarageBand)
- iTunes
- iWork (Keynote)
- Adobe
- Quicktime Pro
- MPEG Streamclip

## Resources

- Sample technology integration projects:  
[www.marymount.k12.ny.us/marynet/index04.html](http://www.marymount.k12.ny.us/marynet/index04.html)
- Physics and social justice videos: [www.marymount.k12.ny.us/marynet/StudentResources/science/ScienceDept/htm/SocJustVideos.htm](http://www.marymount.k12.ny.us/marynet/StudentResources/science/ScienceDept/htm/SocJustVideos.htm)

## Teacher

Eric A. Walters, Director of Science and Technology:  
[eric\\_walters@marymount.k12.ny.us](mailto:eric_walters@marymount.k12.ny.us)

# Case Study #11



## THE PROJECT

# Middle School Engineering

## THE SCHOOL

### Charlotte Latin School

Coeducational, Day School,  
Grade Levels: Transitional K - 12  
Total Enrollment: 1,380  
9502 Providence Road  
Charlotte, NC 28277  
704-846-1100  
[www.charlottelatin.org](http://www.charlottelatin.org)

### Technology involved:

- Variety of hands-on technologies for experiential learning, including flight simulators, virtual car race programs, LEGO robotics kits, and K'Nex construction toys

## Summary

Technology drives the learning process in Charlotte Latin School's middle school engineering classrooms. Now in their 17th year, these semester-long classes for seventh and eighth graders are designed and taught by Thomas Dubick. One feature is the creation of girls-only and boys-only sections designed to encourage greater participation, skill-building, and leadership by middle school girls in the sciences. The class combines art, math, and science and is taught mostly in hands-on labs with few lectures.

Four lessons are among the standouts of this course. In the unit on bridges, students use K'Nex construction toys to practice assembling bridges. They then move to West Point Bridge Builder software to design their own structures, use K'Nex as the materials to construct what they've designed, and use spreadsheets to compute and estimate building costs.

Students later use Microsoft's Flight Simulator software to demonstrate and extend their understanding of how airplanes fly. They follow up using remote-control simulators to practice their flying skills before finally building their own remote-control planes for real flight.

The robotics unit makes use of LEGO robotic kits. Students are given real-life problems to solve, and they compete in classroom contests to construct the best robotic solution. Finally, in a physics lesson, students use NASCAR software as they virtually race stock cars. Students learn about chassis dynamics by changing their car set-ups before a race, testing their set-up in virtual races, and changing set-ups based on race results.

Individual lessons in this semester-long course would be easy to replicate with low-cost purchases of software, robotic kits, toys, and so forth. Even the purchase of one classroom license for a standalone computer would suffice as long as students had other classwork to complete while a student or group completed the lesson on the computer. The strength of the instruction may lie in the consistent follow-up of hands-on activities after computer-based instruction, so care should be taken to include both hands-on and computer-based activities.

### **Requirements**

Students need familiarity with bridge-building, flight-simulation, and automobile-building software skills and with LEGO robotic kits.

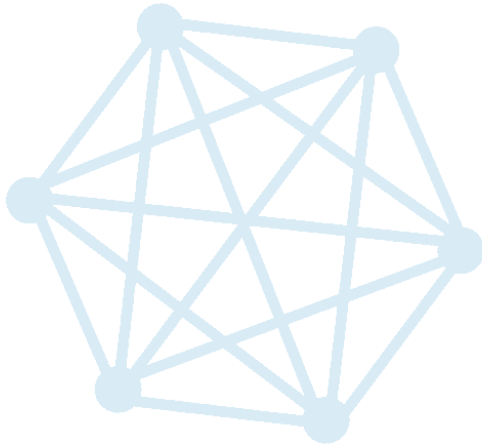
### **Resources**

- K'Nex construction toys: [www.knex.com](http://www.knex.com)
- LEGO Education: [www.legoeducation.com/store/?global=usa](http://www.legoeducation.com/store/?global=usa)
- Microsoft Flight Simulator: [www.microsoft.com/games/flightsimulatorx/](http://www.microsoft.com/games/flightsimulatorx/)
- West Point Bridge Builder 2007: [bridgecontest.usma.edu/download.htm](http://bridgecontest.usma.edu/download.htm)

### **Teacher**

Thomas Dubick, Middle School Teacher: [tdubick@charlottelatin.org](mailto:tdubick@charlottelatin.org)

# Case Study #12



## THE PROJECT

# MySpace History Project

## THE SCHOOL

### Albuquerque Academy

Coeducational, Day School, Grade Levels: 6-12

Total Enrollment: 1,077 students

6400 Wyoming Boulevard, NE

Albuquerque, NM 87109-3899

505-828-3200

[www.aa.edu](http://www.aa.edu)

### Technology involved:

- MySpace social networking web pages

## Summary

When PowerPoint and paper have become “boring,” how do you engage ninth-grade history students in a class project on Renaissance artists? Cathy Lydon, a history teacher, uses the immensely popular yet sometimes forbidden MySpace social networking platform. Since MySpace is discouraged at school and in many students’ homes (adding to its appeal), the class begins its project by requesting permission to use the platform from school administrators and parents. After permissions are granted, the class creates a secure MySpace community to enhance its study of Renaissance artists.

Students begin building the MySpace Renaissance artists’ community by researching and writing a formal paper about a Renaissance artist and analyzing one of the artist’s pieces. Artists such as Michelangelo, da Vinci, and Botticelli are explored. Through research and analysis, each student must demonstrate how the artist’s work displays Renaissance values.

After the research and analysis are complete, students work together in groups to create MySpace profile pages for their artists. Each artist's profile page includes slides, photo albums of the artist's work, videos, music, and background materials. A "Comments" section on each artist's profile page gives students the opportunity to respond to other students' work.

The history project culminates with multimedia student presentations on each artist's MySpace page. Presentations are conducted in a multimedia classroom with sound and media systems. Throughout the project, students develop research, writing, communication, collaboration, design, planning, presentation, and multimedia skills.

### **Requirements**

Students need a computer and Internet access (for creating a MySpace account), multimedia files, and a multimedia classroom.

### **Resources**

- MySpace: [www.myspace.com](http://www.myspace.com)

### **Teacher**

Cathy Lydon, History Teacher: [lydon@aa.edu](mailto:lydon@aa.edu)

# Case Study #13



## THE PROJECT

# Project Someday — Is War Ever Justified?

## THE SCHOOL

### Presbyterian Day School

Boys, Day School, Grade Levels: PK-6

Total Enrollment: 610 students

4025 Poplar Avenue

Memphis, TN 38111

901-842-4600

[www.pdsmemphis.org](http://www.pdsmemphis.org)

### Technology involved:

- iTunes
- Acoustic guitar
- Digital cameras
- Three software programs: GarageBand, an audio-recording application; Comic Life, a graphics program that includes comic-strip applications; and Sound Studio, a digital recording and editing program.

## Summary

“Project Someday” is a sixth-grade interdisciplinary project that incorporates critical and creative thinking skills with social studies, English, music, and art. The project focuses on the question: “Is war ever justified?” and can be adapted for classes studying the Iraq War and other wars and for other grade levels.

The teacher initiates the project by presenting students with a song about war and asking students to add the song to their iTunes playlist. (The Presbyterian Day School students used the song “Someday.” A reflection on war, “Someday” was written by their teacher’s son, a veteran of the United States Marine Corps.) Using iTunes enables the teacher to monitor the number of times the students listen to the entire song. After listening to the song several times, students engage in a class discussion about the lyrics and their meaning.

Students then form bands to write a new final verse for the song. Each band works collaboratively to write new lyrics, record the new lyrics, and design and produce an album cover. The bands' work culminates in a "Battle of the Bands," where a winning lyric is selected and top CDs and album covers are displayed through a teacher-made "Billboard Music Chart."

### **Requirements**

Schools need digital cameras; musical instruments; and audio, graphics, and digital-recording and editing software. Teachers and students need training in GarageBand, Sound Studio, and Comic Life.

### **Resources**

- iTunes: [www.itunes.com](http://www.itunes.com)
- GarageBand, Comic Life, and Sound Studio: [www.apple.com](http://www.apple.com)

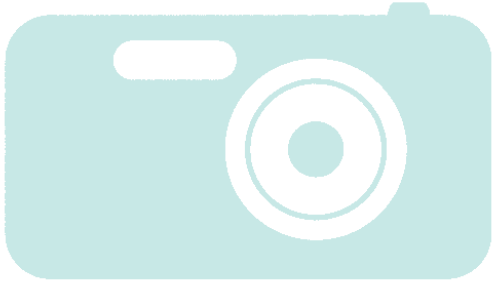
### **Teachers**

Cathy Kyle, Director of Technology: [ckyle@pdsmemphis.org](mailto:ckyle@pdsmemphis.org)

Melissa Smith, Technology Coach: [msmith@pdsmemphis.org](mailto:msmith@pdsmemphis.org)

Jean Nabers, Sixth-Grade History/Science Teacher:  
[jnabers@pdsmemphis.org](mailto:jnabers@pdsmemphis.org)

# Case Study #14



## THE PROJECT

### River Studies Podcasts

#### THE SCHOOL

##### Cold Spring School

Coeducational, Day School, Grade Levels: PK-6

Total Enrollment: 134 students

263 Chapel Street

New Haven, CT 06513

203-787-1584

[www.coldspringschool.org](http://www.coldspringschool.org)

#### Technology involved:

- iPods
- microphones
- camera and camcorder
- handheld USB microscope
- Computers and Apple's iLife suite of software
- Listen and Type software program for transcribing the podcasts for conversion into Spanish

### Summary

Fourth-grade students create audio walking tours that anyone can download to an MP3 player and listen to while walking along local rivers. They hope New Haven residents will use the podcasts to learn about their water resources and will want to take better care of them as a result.

Audio tours include descriptions of plants one would be likely to see, folklore and related music behind the plants, student discussions of various environmental concerns, information about the history of the area, and related interviews with a rich variety of community specialists who share their stories and expertise.

Students in special interest groups develop podcasts for particular sites along the river. Ipod units are used to collect and store audio data, video data, and photographs. With the use of a small microphone that plugs

into the iPod units, students collect information at the sites they are researching.

Collaborating with teachers to decide the most effective way to present their research and findings, they create the basic plan, edit the podcast, and insert photographs, music, art, and video. Exporting the completed product back to the iPod units, they perform a final check and critical evaluation for accuracy, flow, and ease of use. After final adjustments are made, they post it to the Internet using iTunes to make it available to the general public. With the help of the Spanish teacher, they are translating several podcasts to make them available in Spanish.

Experience these podcasts by searching for “Mill River” in iTunes.

### **Requirements**

Students need basic skills with the iLife multimedia suite, iPods, and digital still and movie cameras. The program also requires a lapel microphone, a “Snowball” microphone ([bluemic.com](http://bluemic.com)), iPods for data storage, and an iLife suite of multimedia software, which includes GarageBand, iTunes, and iMovie. Cold Spring used a Kodak Easyshare camera, a Canon camcorder, and a Proscope, a handheld USB microscope that records and stores project data. The school already owned most of this equipment but lacked the iPod Nanos, a key device for the project’s success. The Watershed Fund provided a \$4,800 grant to purchase them.

### **Teacher**

Karen Zwick, 4/5 Class Master Teacher/Technology Director:  
[kzwick@coldspringschool.org](mailto:kzwick@coldspringschool.org)

# Case Study #15



## THE PROJECT

# Sixth-Grade Tablet Program

## THE SCHOOL

### Trinity School

Coeducational, Day School, Grade Levels: PS-6

Total Enrollment: 588 students

4301 Northside Parkway NW

Atlanta, GA 30327-0303

404-231-8105

[www.trinityatl.org](http://www.trinityatl.org)

### Technology involved:

- “Tablet” computers

## Summary

Every sixth-grade student (47 of them in 2007-08) uses a tablet computer to enhance learning across the curriculum. A tablet is a notebook or slate-shaped mobile computer, equipped with a touch screen or graphics tablet/screen that allows the user to operate the computer with a stylus or digital pen or a fingertip instead of a keyboard or mouse. Students use their tablets as organizational binders, storing all documents electronically. In addition to providing a uniform, environmentally sensitive way for students to keep track of their notes, the Tablet Program has spurred collaboration between students at different grade levels — sixth grade students serve as mentors via e-mail to the school’s fourth grade students — and has inspired a variety of technologically enhanced assignments across the curriculum. The following are some examples of Tablet Program projects:

- In language arts, students are immersed in a year-long blogging unit in which they create their own blogs and independently post to their blog once a week.
- In reading, students work collaboratively to create wikis. For example, they created a wiki for the novel, *White Lilacs*. In science, students learn to podcast as a way to better comprehend and enhance learning in the Human Body unit. Students critique various podcasts for quality and work to create their own podcasts about specific diseases or disorders.
- In social studies, students complete webquests and craft photostories to learn about the concepts being presented in class. The photostories are an extension of the study of empires on the African continent.
- In study skills, students complete graphic organizers to help manage information in content-heavy units.
- In math, students create a geometric math trail of Atlanta history. Their math trails are posted to the Project Source wiki when completed.

In addition to the content area enhancement, the Tablet Program gives students and teachers exposure to dialogue and discussion about learning and technology. Through conversations about appropriate Internet use and safety, students are able to discuss problems and challenges in a digital world. Overall, the Tablet Program is putting learning literally and metaphorically in the students' hands.

### Requirements

The school needs a tablet for each student and teacher in the program, as well as accessories such as batteries, carrying cases, powerstrips, LoJack security devices, and headsets.

### Resources

- Anywhere Anytime Learning Foundation: [www.aalf.org](http://www.aalf.org)

### Teachers

Tammie Ciccarelli, Technology Director: [tciccarelli@trinityatl.org](mailto:tciccarelli@trinityatl.org)

Megan Howard, Lead Teacher: [mhoward@trinityatl.org](mailto:mhoward@trinityatl.org)

# Case Study #16

## THE PROJECT

# Telling Their Stories: Oral History Archives Project

.com

## THE SCHOOL

**Urban School of San Francisco**

Coeducational, Day School, Grade Levels: 9-12

Total Enrollment: 354 students

1563 Page Street

San Francisco, CA 94117

415-626-2919

[www.urbanschool.org](http://www.urbanschool.org)

### Technology involved:

- Digital video cameras
- Website
- Video-editing software

## Summary

Now in its eighth year, this award-winning website houses professional-style interviews with elders who witnessed key events of the 20th century. High school students conduct videotaped interviews at the homes of Bay Area residents. Students research and learn interview techniques, develop sophisticated questions, conduct conversational-style interviews, and then transcribe each interview (which lasts at least two hours) to produce full-text and full-motion video content available to teachers and students around the world. Current topics include interviews with survivors of the Holocaust, liberators and witnesses of the Nazi concentration camps, Japanese Americans interned during World War II, and residents of San Francisco's traditionally black Filmore district displaced by redevelopment.

The website contains more than 50 interviews, each available in full text and video. The site is designed for users to read, watch, and listen to

interviews, thus strengthening the accessibility and impact of each story. Most interviews are conducted at the homes of each elder, although some have been filmed at the school or at nearby community centers. A small mobile studio containing professional digital video equipment is quickly set up at each location. After the interview, students produce hundreds of short movie clips and lengthy transcriptions using their laptop computers. A team of volunteer parents then proofs each interview, ensuring accurate transcriptions. The interviews, once complete, are published on Urban School's oral history website. And finally, DVDs are created and distributed free of charge to the families of the elders.

An important goal is to encourage other schools across the nation to implement similar programs. The Urban School holds annual workshops to train teachers in how to start and run similar programs at their schools. The first formal collaboration took root in the McComb School District in McComb, Mississippi. Howard Levin, Urban School's director of technology, traveled to McComb to train teachers and students and participate in student-conducted interviews of local witnesses and participants of the civil rights struggles of the 1950s and 1960s.

### **Requirements**

The teacher and students need interviewing, videotaping, video editing, and web-development skills. DVDs can be produced in-house or outsourced.

There is an enormous range of possibilities for cameras, lights, microphones, and storage devices, depending on the nature of the project, intended purpose and audience, and available equipment and budgets. If necessary, the entire video-capture process can be completed with a simple digital video camera using a built-in microphone and natural lighting.

To learn about the specific equipment that the Urban School uses, go to [www.tellingstories.org/about/technical/equipment.html](http://www.tellingstories.org/about/technical/equipment.html). Given the scope and permanence of "Telling Their Stories," we chose equipment at the lower end of the professional scale.

### **Resources**

- Urban School's "Telling Their Stories" website: [www.tellingstories.org](http://www.tellingstories.org).

### **Teachers:**

Howard Levin, Director of Technology: [hlevin@urbanschool.org](mailto:hlevin@urbanschool.org)

# Case Study #17

## THE PROJECT

# Testing the Waters: A Global Exploration of Water Quality

## THE SCHOOL

### Echo Horizon School

Coeducational, Day School, Grade Levels: PK-6

Total Enrollment: 290

3430 McManus Avenue

Culver City, CA 90232

310-838-2442

[www.echohorizon.org](http://www.echohorizon.org)

### Technology involved:

- Digital science probes with portable data recording devices
- Digital cameras
- iMovie
- Keynote
- Videoconferencing technology

## Summary

Through the use of actual and virtual field trips, scientific probeware, videoconferencing, and blogging, sixth graders at Echo Horizon School collect and analyze real data as they explore issues affecting the world water supply in their own backyards, as well as on another continent. This is an interdisciplinary unit that addresses sixth grade science and social studies objectives in ecology, water systems, geography, and ancient civilizations.

Students explore factors that affect water quality and how changes in water quality affect the organisms that depend on that water for life. They use digital science probes with a portable data-recording device and digital cameras to record data on water from Ballona Creek in Los Angeles and from mountain water sources at PALI Institute, an outdoor science school they attend in Lake Arrowhead, California. They record water temperature and levels of conductivity, pH, dissolved oxygen, turbidity, ammonia, nitrates, and phosphates, as well as time of day,

air temperature, barometric pressure, dew point, humidity, elevation, latitude, and longitude.

The same equipment is brought to another country (in this case, it was Peru), where the teacher collects water samples from nine different locations and transmits them back for students to analyze. The students in California blog and participate in videoconferences with the teacher while she is abroad.

The teacher also shares audio recordings of local sounds and interviews with local individuals in which they discuss the current issues affecting their water quality and the environment.

Back at school, students analyze the data collected, considering each water source's usefulness for drinking and agriculture and which environmental and human factors may have influenced the quality of the samples. Students use digital images and Google Earth to get a sense of the environment surrounding the sources and compare the probeware readings to acceptable levels found in online research and in a digital Water Quality Field Guide produced by PASCO.

Working in pairs, students then deliver a keynote presentation to their peers to share their in-depth analysis of one of the water sources and engage the class in a discussion about their findings. At the conclusion of the unit, students use iMovie to create public service announcements to share messages that they feel are important for people to know about water quality and conservation.

### **Requirements:**

Schools need digital cameras, videoconferencing abilities, digital science probes, portable data recording devices, and presentation and video-editing software. Students need instruction in the probes, iMovie, and correct camera use. Teachers need to know the same as well as how to use videoconferencing equipment.

This program is also dependent on having teachers or students who can travel to a water source that is distant and unique from the home source. It further depends on traveling to a place where the water source may face environmental threats.

### **Resources**

- PALI Institute: [www.paliinstitute.com](http://www.paliinstitute.com)

### **Teacher:**

Elaine Wrenn, Technology Coordinator: [elainewrenn@mac.com](mailto:elainewrenn@mac.com)

# Case Study #18

## THE PROJECT

# Traveling the Novel: Connecting Global Perspectives, Technology, and the Text

## THE SCHOOL

### Harpeth Hall School

Girls, Day School, Grade Levels: 5-12

Total Enrollment: 650 students

3801 Hobbs Road

Nashville, TN 37215

615-297-9543

[www.harpethhall.org](http://www.harpethhall.org)

### Technology involved:

- Laptop computers
- Google Earth
- Wikispaces web pages

## Summary

Junior-class English students reading Khaled Hosseini's *The Kite Runner* use Google Earth along with teacher-developed materials to grasp how the landscape shapes the novel's narrative. Through a series of guided exercises, students come to understand how the personal and political conflicts Hosseini's characters encounter are metaphorically embodied by the physical journey at the book's core.

Students download and install Google Earth and are provided a Kite Runner Starting Points map divided into six folders: Your World, where students locate and mark their own homes and school; Region Overview, which provides a geographic context for the beginning of the story; and Parts One through Four, which map significant landmarks from the four main sections of the book (Kabul, California, Pakistan, and Afghanistan). The place markers in these folders serve as starting points for each student's individual journey through the text.

Students are also given a Kite Runner Google Earth Itinerary that directs them to “Travel to” the specific locations already pinpointed on the map. At these sites, they follow instructions on the itinerary telling students to quote from the text, add images, view videos, or reflect on the situations connected to the location. Other steps on the Itinerary require students to “Locate” certain places by using the search feature of Google Earth (for actual sites, such as the San Jose flea market) or their own imagination (for Amir’s house in Kabul, for example). At each location, they must add their own place marker containing quotations from the text, relevant images or videos, or reflections on the importance of that site.

Students may visit a wiki that explains how to navigate the Starting Points map and perform various tasks within Google Earth.

Teachers in other disciplines and grade levels at Harpeth Hall are building on the success of this project to add transformative content to such topics as the journeys of Lewis and Clark, the Iditarod dogsled race, and school trips to far-off places.

### **Requirements**

For each student involved, this project requires a computer with Internet access, the novel or textbook being targeted, and a student journal, which can be either a hard copy or electronic. Students also need to understand wiki pages and several Google Earth tools and functions.

### **Resources**

Google Earth: *earth.google.com*

Harpeth Hall Google Earth: *hhusesgoogleearth.wikispaces.com*

### **Teachers**

Judith Scot-Smith Girgus, English Teacher: *girgus@harpethhall.org*

Melissa Wert, Technology Integration Specialist: *mwert@harpethhall.org*

# Case Study #19

## THE PROJECT

# Using Wikis in the English Classroom

## THE SCHOOL

### Fredericksburg Academy

Coeducational, Day School, Grade Levels: PK-12

Total Enrollment: 556 students

10800 Academy Drive

Fredericksburg, VA 22408

540-898-0020

[www.fredericksburgacademy.org](http://www.fredericksburgacademy.org)

### Technology involved:

- Wiki web pages

.com

## Summary

Fredericksburg Academy students in grades nine-11 use wikis to engage in meaningful learning activities, including publishing original stories, completing group projects, and researching and developing formal research papers. Below are examples of their wiki-based work:

- Ninth graders publish and critique each other's papers through a closed, classroom wiki. Overwhelmingly, comments are positive and helpful as the instructor has the ability to see everyone's comments. Most students comment on at least three of their classmates' papers.
- While reading the novel *Regeneration*, sophomores work with a partner to research a historical element from the novel, create a digital wiki report, and present their findings to the class. Students add relevant pictures and hyperlinks to their wiki pages to make them more engaging. Class time is provided for partners to share their wiki pages

and for individuals to explore and comment on classmates' pages. Students choose their own topics and are highly motivated to produce wikis that grab their classmates' attention.

- Juniors use wikis to record individual homework assignments and group class discussion notes. The wikis provide a helpful tool for homework accountability and discussion monitoring. With a wiki history tab, it's very easy to verify when student homework is completed as the tab includes a time stamp. The teacher can also use the wiki to comment on homework or contribute to class discussions.

Using wikis in the English classroom does not replace traditional learning objectives but can enhance students' learning experiences. Opportunities for variety and collaboration create a learning environment that is engaging and rewarding. Experimenting with new digital resources and finding ways to use them effectively can also be rewarding for teachers.

### **Requirements**

Schools need computers with Internet access and a wiki account. Many wiki sites such as Wikipedia and *wikispaces.net* offer free resources for K-12 teachers. After becoming familiar with wikis, a teacher can incorporate them into lessons fairly quickly and easily.

### **Resources**

- To set up a free wikispace for your class, go to *wikispaces.net*.

### **Teacher**

Jennifer Clark Evans, English Teacher:  
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# Case Study #20



## THE PROJECT

# Videoclass: A Multidisciplinary Project for Lower School Students

## THE SCHOOL

### McDonogh School

Coeducational, Day and Boarding School,

Grade Levels: K-12

Total Enrollment: 1,292 students

8600 McDonogh Road

Owings Mills, MD 21117-0380

(410) 363-0600

[www.mcdonogh.org](http://www.mcdonogh.org)

### Technology involved:

- Personal computers
- Movie editing software such as iMovie, Windows Movie Maker, or Pinnacle Studio
- Digital video camera

## Summary

Videoclass is a multidisciplinary project designed for lower-school students and implemented in the third grade. In this course, students integrate the study and practice of the process of filmmaking with social studies, English, and art.

Students work as scriptwriters, directors, actors, and movie editors to produce movies about topics such as United States symbols, national monuments, fables, and American tall tales.

The students begin by researching their topics and taking notes in Videoclass booklets. Once their research is complete, the creativity begins. Students work collaboratively with a partner to develop plots and scripts based on their research. They assemble props and costumes for their movies. Some classes draw title pages, create masks or puppets, and then all commence with filming each other's project.

Students learn skills in Videoclass that extend across all areas of the curriculum, including researching, writing, public speaking, creative thinking, and technology. Editing films enhances a student's ability to sequence and organize, make choices, and manipulate information. The product of this learning is both public and authentic. Each student is given a director's hat and clipboard and receives instruction on operating the video camera in order to film each other's projects. Following filming, students begin the editing process, which includes adding titles, transitions, sound effects, and music to their movies. When students begin filmmaking at an early age, they develop and refine problem solving, creative, and critical thinking skills throughout their educational journey.

Videoclass ends in a celebration and showcase of student work. When all movies are complete, they are saved to a DVD and premiered at a wrap party. The party is a fun event modeled after the Oscars, at which each student is highlighted when he or she receives a "McD Video Award." Popcorn is also served! Each student receives a copy of the compilation DVD.

### **Requirements**

Teachers need training in use of digital video cameras and iMovie or a comparable video editing program. Students need a camera and movie editing software. Student groups can be used effectively to keep down the cost of the cameras; however, for maximum learning, every child should be trained in how to use the editing program. In addition, movie clipboards, visors, and video awards add to the enjoyment of Videoclass.

### **Resources**

- iMovie: [www.apple.com/ilife/imovie/](http://www.apple.com/ilife/imovie/)
- Movie Maker: [www.microsoft.com/student/en-US/Content.aspx?CID=316](http://www.microsoft.com/student/en-US/Content.aspx?CID=316)
- Pinnacle studio: [www.pinnaclesys.com/PublicSite/us/Products/Consumer+Products/Home+Video/Studio+Family/](http://www.pinnaclesys.com/PublicSite/us/Products/Consumer+Products/Home+Video/Studio+Family/)

### **Teacher**

Cindy Green, Elementary Teacher: [cgreen@mcdonogh.org](mailto:cgreen@mcdonogh.org)

# Case Study #21



## THE PROJECT

# Virtual Field Trips: Experiencing Your Hometown from Your Classroom

## THE SCHOOL

St. Mary's Episcopal School

Girls, Day School, Grade Levels: PK-12

Total Enrollment: 865 students

60 Perkins Extended

Memphis, TN 38111

901-537-1472

[www.stmarysschool.org](http://www.stmarysschool.org)

### Technology involved:

- Memphis websites
- Digital photographs of Memphis
- GarageBand
- iWeb

## Summary

Wouldn't it be wonderful if students' social studies curriculum allowed them the opportunity to take field trips to see for themselves the historical and cultural opportunities available in their hometowns? In an effort to give students a broader perspective on their study of Memphis, third grade teachers work with a technology coordinator to create a virtual field trip project.

The classroom teacher introduces the study of Memphis by showing a video, *A Kid's View of Memphis*. The class then reads books about Memphis and discusses favorite places to go and things to do. Different landmarks are discussed, and a parent letter is sent home explaining the unit and asking parents to help their child choose a landmark to visit, such as a museum, historical site, nature area, or tourist attraction.

Once each student has his or her landmark, parents take their children to their assigned locations, where they explore, gather information, and

take digital photos. Back at school, students make a concept map of their landmark and identify and record key words about their place. They set personal goals, learn about plagiarism and how to paraphrase, and begin creating notecards. From these, they choose information they will use to create podcasts of their field trips.

With their homeroom teacher, they write advertising scripts about their locations that include factual information but are also designed to convince others to visit the site. During computer time, students make podcasts by first creating the audio recording of their scripts and then timing the layout of their photos to match the recording. A rubric is used to evaluate the quality of the notecards, and another rubric evaluates the quality of the podcast, including the selection and timing of photos with the script. The computer teacher uploads finished podcasts on a website for all to view and virtually experience the fabulous places that make up Memphis.

### **Requirements**

Students use personal digital cameras to take pictures while on the field trips, and parents pay for the cost of admission to the Memphis landmarks. The school owns the software and microphone equipment, so there are no additional costs.

### **Resources**

#### **Print**

- *City on the Bluff* by Rebecca Robertson
- *Memphis Mazes* by Sarah West Walne
- *Tales of a River Town* by Patricia Leeker and Mimsy Frazier
- *iiM Manual: Independent Investigation Method* by Cindy Nottage and Virginia Morse

#### **Non-Print**

Various landmarks in Memphis

#### **Videos**

*A Kid's View of Memphis* (Memphis City Schools)

#### **Websites**

- [en.wikipedia.org/wiki/Memphis,\\_Tennessee](http://en.wikipedia.org/wiki/Memphis,_Tennessee)

- [memphis.about.com/od/historyandfacts/a/history.htm](http://memphis.about.com/od/historyandfacts/a/history.htm)
- [www.hellomemphis.com/Photos\\_People.Cfm](http://www.hellomemphis.com/Photos_People.Cfm)
- [www.tnhistoryforkids.org/cities/memphis](http://www.tnhistoryforkids.org/cities/memphis)

**Teachers:**

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## CONCLUSION

# The Brilliant Possibilities: Lessons Learned from the Excellence Challenge

By **Lorrie Jackson**, Director of Communications and Marketing, Lausanne Collegiate School

**W**hat does it take to transform how we teach — to engage our students and let them lead the learning? These 21 case studies show us that excellence in the classroom begins when we do not simply use technology for technology's sake but when we:

### **Use what we already have.**

Many of the case studies use free websites (Facebook, wiki and blog sites, and so forth) or software that is often bundled with a school's computer purchase (iTunes, GarageBand). Implementing a new lesson in your classroom may require nothing beyond the technology you have now.

### **Connect beyond our campus.**

Note that more than half of the case studies include community involvement: connecting students with places and people beyond their campuses. From Peru and China to the museum or river down the street, the world is waiting for you and your students.

### **Learn to let go.**

Where's the PowerPoint book report or lecture notes in Word? If you want each child to absorb and then recite the same facts and concepts, these stories are not for you. These case study educators were willing to

equip students with an academic foundation and the technology they need to set them free to explore, inquire, investigate, assess, synthesize, and create. They achieved true classroom engagement and meaningful learning by liberating the students and limiting the lecture.

**Make learning hands-on, no matter how advanced the curriculum.**

Again and again, the case studies feature concepts or courses that can be highly abstract, esoteric, or theoretical. Technology gives students a chance to roll up their sleeves and play around with concepts in a more concrete way than would be otherwise possible.

**Expect the world from our students.**

Third graders creating award-winning videos. Sixth-grade boys writing lyrics on the hardships of war. Middle-school students conducting energy audits and making energy-saving recommendations to area homeowners. High schoolers writing art history podcasts worthy of publishing on the Smithsonian's website. When we as educators believe our students can reach beyond our own expectations, they will surprise and delight us.

Need more inspiration and conversation? Take a look at the stories found in the NAIS "Stories of Excellence" community at [www.nais.org/go/communities](http://www.nais.org/go/communities) (go to Teachers of the Future/Open Community/Stories of Excellence) or simply step outside your classroom door. Each day across the U.S. and beyond, independent school educators are making learning come alive for students through the innovative use of technology. It's time we all took the excellence challenge.

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