By Jan Zanetis

The Beginner's Guide to Interactive

For students, field trips can be the best of both worlds: a welcome and exciting break from day-to-day classroom activities and a memorable, real-world experience that will solidify the curriculum in their minds. Unfortunately, the most desirable trips—those to far-away, enticing destinations—have long been inaccessible to all but a select few, and even local field trips have become less common as travel costs have steadily risen over the past several years.

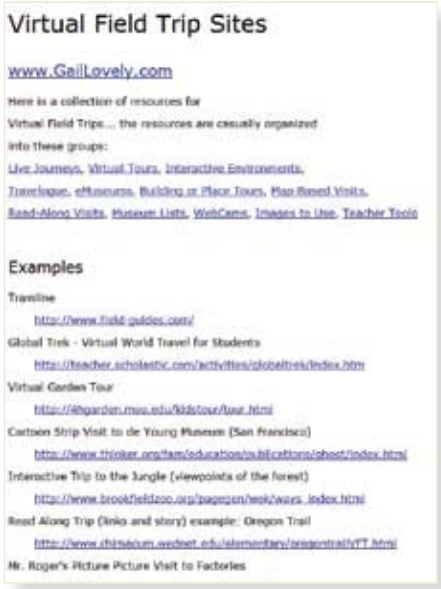
But today we have other options. Virtual field trips (VFTs) are just what their name suggests: field trips that are conducted virtually, over the Internet and/or videoconferencing equipment, so that students can learn directly from experts in far-flung places without ever leaving their classrooms.

Just like traditional field trips, VFTs take a number of different forms. They can involve touring a historic site, witnessing scientific experiments or processes at museums or organizations, watching live demonstrations in the field, attending folk festivals or other events, and much more. They differ from the traditional variety only in that they are delivered over the Internet using technology in either asynchronous or interactive synchronous formats.

Asynchronous VFTs

Asynchronous VFTs are not delivered in real time. They are basically websites that include text, audio, or video resources about specific topics. Examples of asynchronous VFTs are webpages devoted to a topic, a streaming video tour of a particular location, and a podcast of a host guiding you through a collection of photos.

This type of VFT varies in substance, quality, and educational relevance. If you are interested in using this type of resource to supplement your lessons, you can save time with one of the VFT aggregator sites that have collected reputable programs for K–12 use. Here are a few to get you started:



E-Field Trips
www.efieldtrips.org

This organization hosts electronic field trips with four main parts: the Trip Journal, the Virtual Visit (a streaming video), an Ask the Expert tool, and a hosted Web chat.

Access Excellence Resource Center
www.accessexcellence.org/RC/virtual.php

This site lists a collection of mainly science- and health-related VFTs and online labs.

Gail Lovely's site
www.gaillovely.com/VirtualFieldTrips.htm

Lovely provides a hot-linked list organized into live journeys, "interactive environments," travelogues, e-museums, building and place tours, map-based visits, and read-along visits.

Virtual Field Trips

With a little practice, students and teachers can easily respond to a presenter on camera showing images, conducting activities, and discussing academic concepts.

The Cleveland Art Museum is one of hundreds of organizations that offer high-quality, interactive VFT content for K–12 classes.

Large groups of students need h.323 videoconferencing equipment, which uses a codec like this one, to get the full effect of a VFT.

The National Baseball Hall of Fame offers a unit called "Math: Batter Up," among other educational units. Go to http://education.baseballhalloffame.org/experience/thematic_units/mathintro.html.

Interactive VFTs

Interactive VFTs are synchronous, real-time experiences in which students in one location learn from informal educators in another location, such as a museum, historic castle, or organization such as NASA.

These interactive VFTs take place over the Internet using h.323 videoconferencing technology. Not to be confused with videoconferencing systems that consist simply of webcams attached to computers, which are more suitable for single students or very small groups, h.323 systems require a piece of large-group videoconferencing equipment called a codec.

Before writing off this option as too expensive, you should know that your school district may already have a videoconferencing unit that you are unaware of. A 2009 study by Wainhouse Research found that approximately 30% of U.S. schools have installed large-group videoconferencing equipment. Many of them originally purchased these systems to conduct distance classes but have since discovered they can use them to connect their students to talented educators from across the globe who are willing to share their organizations' resources in an engaging and personal way through interactive VFTs.

I know of approximately 300 museums, science centers, historical sites, and similar organizations that offer interactive VFTs to schools. Onsite credentialed experts usually present live, standalone, interactive lessons focusing on a curricular topic related to the organization. For example, the National Baseball Hall of Fame offers a unit called "Math: Batter Up," which teaches students in grades 4–12 fundamental concepts that connect the calculator and the clubhouse while they learn, use, and interpret the statistics of famous ballplayers. Computation is the key to determining batting averages and slugging percentages.

Using the videoconferencing interface, students can interact with the experts to get a real-world angle on the topic they are studying. The experts are usually trained and adept at adjusting to the students' level of comprehension. They may showcase and explain a museum display, demonstrate an experiment, or take students on a tour of the location they are broadcasting from. Students usually have no problem adjusting to interaction with an on-screen instructor, and, in fact, often find the experience novel and engaging.

"We live in a media-saturated society," points out Dale Hilton, director of distance learning at the Cleveland Museum of Art. "With a little practice, students and teachers can easily respond to a presenter on camera showing images, conducting activities, and discussing academic concepts."

The lessons, which are usually based on national standards, also often include materials targeted to the students' area and grade level as well as classroom activities for students to do before and after the interactive VFT. For example, the Center for Puppetry Arts offers a downloadable study guide on its website as well as a materials list and templates for students to build their own puppets as part of its "Discovering Puppetry in Other Cultures" VFT.

Award-Winning VFT Content Providers

The Center for Interactive Learning and Collaboration (CILC) asks teachers to evaluate interactive virtual field trip content providers each year to determine the CILC Pinnacle Award Winners. The 2008–09 winners are:

Adventures in Medicine & Science (AIMS) Program of Saint Louis University | http://aims.slu.edu

Center for Puppetry Arts | www.puppet.org

Cleveland Institute of Music | www.cim.edu/dl/index.php

Cleveland Museum of Natural History | www.cmnh.org

George Washington's Mount Vernon Estate | www.mountvernon.org/learn/index.cfm

Hank Fincken: A National Theatre Company of One | www.hankfincken.com

HealthSpace (now part of Cleveland Museum of Natural History) www.cmnh.org/site/classesandprograms/schoolprograms/healthed.aspx

Opportunities to Engage

VFTs have many benefits for students of all ages. First, the medium itself enchants and engages. To be able to view, hear, and interact with people who are far away is powerful, especially if those people are articulate and experts on the topic the students are studying.

Second, there is no better way, short of traveling long distances with your students, to share the wonders of the world while connecting them to their studies. When studying coral reefs, visit the Great Barrier Reef. When teaching averages, visit the Baseball Hall of Fame. When covering the Mesozoic period, plan a VFT to the Royal Tyrrell Museum of Palaeontology. But don't feel limited to content providers in obvious subject areas. For example, your class can study simple machines by tapping into the Cleveland Museum of Art's collection of armor and crossbows via interactive VFT.

Janet Adams, a technology and curriculum specialist for Kings County Schools in California, states that since their schools have started participating in interactive VFTs, she has seen a lot of changes in teaching and learning. "Virtual field trips empower teachers, librarians, administrators, and IT staff to create significant opportunities for their school to focus on a world beyond the chain link fence," she says. "And I have witnessed over and over students asking questions of museum curators, wildlife naturalists, NASA instructors, historians, and peers located beyond our state borders."

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VFTs do remove the barriers between your classroom and those far-away people and resources. It may seem a little strange at first to be talking to a TV, but once students get engaged in lively discussion with those on the far end, the technology becomes invisible, and the classroom walls disappear.

Getting Started

The first thing you should do is check around your school system to locate a videoconferencing unit. Your district technology coordinator should be able to help. If you find a system, make sure to ask if it is h.323 compatible and capable of IP-based connections.

If you strike out there, contact some videoconferencing equipment vendors and ask if they can do interactive VFT demos for your school. Don't forget to find out if they offer grants and assistance programs. Some videoconferencing equipment companies such as Polycom and Tandberg, for instance, match schools to potential funding sources and provide grant-writing assistance.

Once the equipment is in place, you'll need access to quality content. The best place to start is at the Center for Interactive Learning and Collaboration

Life Science Education Center at Marian College | www.marian.edu/EcoLab/Education/Pages/default.aspx

Louisville Science Center | www.louisvillescience.org

Mote Marine Laboratory | www.mote.org

NASA Digital Learning Network (Kennedy Space Center, Jet Propulsion Laboratory, Johnson Space Center, and Goddard Space Flight Center) | http://dln.nasa.gov/dln/content/catalog

The National WWII Museum | www.nationalww2museum.org

Oregon Museum of Science and Industry (OMSI) | www.omsi.edu

The Paley Center for Media | www.paleycenter.org

Reef HQ Aquarium in Australia | www.reefhq.com.au

Virent Broadcasting Company | www.virent.net

(www.cilc.org), which allows you to search for content based on subject matter, grade level, cost, or content provider. You can register for programs through the site.

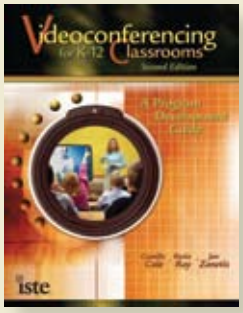
Look for interactive VFTs led by known experts and reliable organizations that use credible primary sources as the key focus of the lessons. It also helps to know what other teachers have thought of a particular program before you register your class. A nice feature of the CILC program descriptions is that they often include a teacher evaluation component (see "Award-Winning VFT Content Providers").

"Look for one that leads students to discuss and explore ideas they had not considered previously—one that addresses misconceptions," suggests Greg Pitzer of NASA's Digital Learning Network.

Interactive VFTs often have a fee. But when compared to the cost of a real field trip, and considering the value students get out of them, many schools have decided to work these costs into existing fee structures or to add VFT funding to their budgets. If cost is a major hurdle in getting started, many content providers, such as NASA, also offer excellent free programs.

Jan Zanetis, MEd, was a primary teacher for 20 years before becoming the market manager for education at Tandberg. She is president emeritus of ISTE's Special Interest Group for Interactive Videoconferencing and has co-written two ISTE books about IVC.

ISTE Videoconferencing Resources



If you're interested in other ways to use videoconferencing in the classroom, check out ISTE's book *Videoconferencing for K–12 Classrooms, Second Edition,* by Jan Zanetis, Kecia Ray, and Camille Cole.

This new edition includes a comprehensive review of current (and near future) options for building an effective videoconferencing program, from initial planning to teacher training, implementation, and assessment. The authors, who are experts in the videoconferencing and education fields, provide examples, case studies, vetted resources, and practical tips to enhance existing videoconferencing capabilities or build a system from the bottom up.

If you want to experience an interactive virtual field trip for yourself, consider attending the IVC Showcase at ISTE 2010 in Denver, where various content providers will present free 30-minute VFTs for attendees throughout the conference. (Registration is not necessary, but it's a good idea to get there early.)