

Recent Conference Presentations

Society for Information Technology in Teacher Training (SITE) March 20-24, 2006 -- Orlando, FL

The ITEST Participatory Research Experience: Findings and Lessons Learned

Learning Resource Center Staff: Leslie Goodyear, LRC

Presenters: Patty Watts and Barbara Armfield, DAMSALS2; Randy August, Robotics; Jazlin Ebenezer, Lake Erie Ecosystem

Visit the ITEST LRC News & Events page for more information about conferences and ITEST-related activities.

<http://www.edc.org/itestlrc/ITESTNews&Events.htm>

NEWS & RESOURCES FROM AND FOR THE FIELD

Rising above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future

Developed by the National Academies Committee on Science, Engineering, and Public Policy, this report identifies the top ten actions needed to enhance science and technology to ensure that the United States will prosper and be secure in the 21st Century.

http://www.nap.edu/execsumm_pdf/11463.pdf

Land of Plenty: Diversity as America's Competitive Edge in Science, Engineering and Technology

This report, published by the Congressional Committee on the Advancement of Women and Minorities in Science, Engineering and Technology Development (CAWMSET), details recommendations for diversifying participation in IT careers.

http://www.nsf.gov/pubs/2000/cawmset0409/cawmset_0409.pdf

Science & Engineering Indicators 2006

Published by the National Science Board (NSB), Science and Engineering Indicators 2006 provides a broad base of quantitative information on science, mathematics, and engineering education

American Educational Research Association (AERA) April 7 -11, 2006 -- San Francisco, CA

Using Cutting-Edge Technology to Further Student and Teacher Science Education--Programs and Evaluations that Respond to a National Need

Session Leader: Leslie Goodyear, LRC

Presenters: Sylvia James, NSF; Marjie Darrah, Donna Peduto, and Roxann Humbert, CITERA; Steven McGee, Jennifer Kirby, and Adam Tarnoff, iGIS; Helen Cagampang, Marine Biotech; Susan Yoon, AIM; Carl Huffman, Lake Erie Ecosystem; Deborah Muscella and Karen Peterman, Technology at the Crossroads; Drew Yaeger and Lance Cutter, Yes-2-Tech

at all levels; the scientific and engineering workforce; U.S. and international research, development, and competitiveness in high technology; and public attitudes on the understanding of science and engineering.

<http://www.nsf.gov/statistics/seind06>

National Research Council Urges Schools to Teach 'spatial literacy'

The National Research Council publication, Learning to Think Spatially, examines how spatial thinking might be incorporated into existing standards-based instruction across the school curriculum.

<http://www.nap.edu/catalog/11019.html>

For more information on diversity/equity, IT career opportunities, teaching/learning methodologies, etc., please see the ITEST LRC Resource Library.

<http://itestlrc.edc.org/SPT--Home.php>

About ITEST

The Information Technology Experiences for Students and Teachers (ITEST) program was established by the National Science Foundation in direct response to the concern about shortages of IT workers in the United States. The ITEST program funds projects that provide opportunities for both school-age children and teachers to build the skills and knowledge needed to advance their study and to enable them to function and contribute in a technologically rich society. The ITEST National Learning Resource Center at EDC supports, synthesizes, and disseminates the program's learnings to a wide audience.

<http://www.edc.org/itestlrc>



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NEWSLETTER

ISSUE 2, SPRING 2006

This newsletter is accessible online at <http://www2.edc.org/itestlrc/newsletter/issue2.htm>.

In This Issue

- Feature Story: 2006 ITEST Summit
- Spotlight: MyBEST
- ITEST Projects' Success Stories
- Events & Publications
- Conference Presentations
- News & Resources from and for the Field

Dear Reader:

This is our second newsletter on the dynamic work of National Science Foundation-funded ITEST (Information Technology Experiences for Students and Teachers) projects across the United States. As you read through this issue, you'll learn more about the many educators and young people who are using cutting-edge technology to advance learning in both formal and non-formal settings. In this issue, we share highlights of our third annual summit, a gathering of ITEST project leaders to network, share lessons learned, and explore how best to interest young people in STEM (Science, Technology, Engineering & Math) learning and careers. You'll also read recent success stories and learn about upcoming events and publications. Please stop by our website regularly for news and updates about the work of all the ITEST projects.

Best,

Tony Streit

Co-Principal Investigator - NSF ITEST Learning Resource Center at EDC

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FEATURE STORY: 2006 ITEST SUMMIT

Building a Robust, Diverse STEM Workforce: A Report on the ITEST Community's Collaborative Effort

Do you know a 15-year old who is interested in science, technology, engineering, or math (STEM)? Let's hope so... Our middle school and high school youth need to be ready to meet the technology skills shortage and critical STEM career needs of the future. In fact, young people this age, and the teachers who work with them, are precisely the target audience of the ITEST program.

ITEST was launched by the National Science Foundation in 2002 to address a predicted shortage in the STEM workforce through projects designed to increase opportunities for students and teachers to learn about and use information technologies in dynamic STEM experiences. The 51 ITEST projects in 27 states serve 80,000 students and 3,000 teachers, placing particular emphasis on reaching groups historically under-represented in the STEM fields. Recently, at the third annual ITEST Summit, project staff from across the U.S. gathered to share effective strategies and recommendations for encouraging young people to pursue interest in these fields.

The Summit, 'From Concept to Reality: Transforming Teaching and Learning through ITEST,' was hosted by the ITEST Learning Resource Center at EDC.

The importance and currency of this initiative in the education, business, and government sectors was underscored by Senator Edward M. Kennedy (D-MA), who addressed the symposium: "In today's global economy, we must do all we can to see that all our citizens have the best possible education. Guaranteeing that our talented youth have the opportunity to succeed, especially in the critical fields of science, math, technology and engineering, is vital to our nation's future."

Sharing Questions, Strategies, and Lessons Learned

"How do we ensure that IT tools enhance deeper content?" asked the working group of new ITEST projects, in their session devoted to eliciting a collaborative research agenda. They also raised the question, "Is it

already known that informal learning is more self-motivating?" Research questions like these will be explored as a service to the ITEST community and the field in the course of this program. For projects in their second year, the Summit provided a dedicated forum for reporting on their evaluation work and discussing findings, opportunities, and challenges with their colleagues.



ITEST working groups brainstorm questions for collaborative research plan

The first group of ITEST projects has entered its third and final year of funding, and the ITEST Summit presented an ideal opportunity for project directors to share some of their valuable strategies and lessons learned for the benefit of other ITEST projects and the wider stakeholder community. A sampling of these follows:

• Relationships and Partnerships

In his presentation, **Dan Calvert, Co-Principal Investigator of the Salmon Camp Research Team**, reflected, "Our relationships and partnerships are completely key to what makes Salmon Camp work." These partners include the national parks service and a variety of federal state, tribal, and university staff. He continued, "I can't stress enough the importance of the **hands-on experience** our kids get when they go out working with researchers. I think it really benefits both parties involved; it's real and genuine." Testifying to the centrality of relationships to the success of his program, he commented: "I know all my participants and all the parents. I interact with them on a daily basis. I think that is really important, to have staff that stick around and maintain an open, trusting relationship with the parents."

• Technology and Motivation: Fostering Persistence

"How do you inspire kids to think of technology differently, to make it their own and use it as a tool?" **Kristen Murray, Co-Principal Investigator of the MyBEST** project, asked. "We've learned to give the kids external motivation: have a client or an audience that they're serving with their work. Teens want an audience; they want their work to be real... finding ways for them to use the technology to give back to the museum and the community

they live in has been really critical. And make the opportunities as authentic as you can."

Robert L. (Chip) Lindsey, Principal Investigator of the DesignIT Studios project, cited mentors as essential to sustaining young people's interest in the field. He emphasized that the "mentors' long-term bonds with kids is the key; having a "personal impact on young people plays a huge role in reducing attrition in this field." He discussed several "ways of using mentorship meaningfully:

- Select mentors who really care about, are passionate about and open to being with kids as well as being passionate about their fields of expertise
- Plan for extended time for mentors to bond and talk about other things with kids."

• Retention and Implementation

"Retention of teachers in our program is high," reported **Steve Moore, Principal Investigator of the Ocean Explorers** project. He attributes this to several factors, including "commitment, collegiality, respect, and inspiration; software and training; adventure (kayak trips); stipends; community identity; mentoring (personal touch); and fun."

At the same time, his project faces challenges in getting action from the participants. He discussed contributing factors: "typical technology barriers; science process barriers; geospatial literacy barriers; intrapersonal and interpersonal barriers; and project leadership barriers. We have found that consistent follow-up on deadlines, scaffolding complex tasks onto simpler ones, and providing templates are successful strategies to overcoming these barriers."

Simona Bartl, Principal Investigator of Marine Biotechnology and Bioinformatics, reflected:

"It's very important for our teachers that they're doing real science, that this science will lead to answering a real question. They generate DNA data that is unique... We try to provide teachers with this authentic science and IT experience—working on applied IT skills. We give them a standards based curriculum; we also do webcasts and give them information on careers. Many of our teachers say that they don't really talk about careers in their classrooms and they don't have that information, so that's a key point we need to think about and talk about."

Don Knezek, CEO of ISTE (International Society for Technology in Education), echoed the importance of training teachers in scientific methodology using technological tools: "Scientists are working 85 to 90 percent of

gies. **We're realizing success in providing: opportunities to consolidate knowledge with IT content and skills; authentic workplace experiences (i.e., paid positions and high expectations for participation); mentor relationships with DesignIT staff; and opportunities for peer coaching and learning.** Our efforts are being recognized in various ways—one shining example: teens with our project were recently featured in an episode of Dragonfly TV. In this national TV series, pre-teens use the cool science stuff in museums to answer their science questions. The Fort Worth Museum was one of 15 science centers around the U.S. selected to participate in this PBS science series geared to a middle-school audience. In celebration of this honor, the museum hosted a special event, 'Dragonfly TV Day,' offering kids of all ages hands-on science fun like owl pellet investigations, fossil sorting, and more. DesignIT Studios teens who appeared in the episode were on hand to lead a giant "Chain Reaction" activity in ExploraZone and "Spin Art" in the Rotunda.

http://www2.edc.org/itestlrc/itestprojects/design_studio_tx.htm

From the IMMEX team~

The IMMEX Fayette Consortium: **Community Integrated Problem-Solving** is a comprehensive project that provides a community-integrated model in which teams of teachers, students, business partners, and higher education faculty construct interactive, problem-solving

simulations integrating standards-based curricular content and technology issues commonly encountered in STEM careers in technology institutes for teachers and students. This project is based in Lexington, Kentucky.

Our teachers and students have collaborated with various business and community partners to develop real world problem scenarios. One completed physics problem set calls for students to figure out who is at fault in a car accident. Bill Floyd, an accident reconstruction specialist assisted the students by attending their after-school work sessions and showing them exactly how such an investigation is done. William Caylor, the President of Kentucky Coal Association, provided similar assistance and expertise to a problem set (still under development) about economic and environmental issues connected to coal. Dr. Scott Diamond, a physiologist at the University of Kentucky took an active role in working with one middle school, spending many hours in the classroom promoting science as a career. This 8th grade class took a field trip to Dr. Diamond's lab at the University. Our success in problem set design led us to develop new partnerships with the owner of the Lexington Legends (a minor league baseball franchise) and the Lexington Explorium (a science museum for children and youth [<http://www.explorium.com>]). In addition, we also succeeded in receiving \$800,000 through Enhancing Education through Technology (EETT) funding and a grant from the National Actuary Foundation.

http://www2.edc.org/itestlrc/itestprojects/immex_ky.htm

EVENTS & PUBLICATIONS

Recent Events and Publications

Visit the **ITEST LRC News & Events** page for updated information <http://www2.edc.org/itestlrc/ITESTNews&Events.htm>

Engaging Girls and Women in Science, Technology, Engineering and Mathematics: The Future Workforce [Webcast Highlights, April 2006]

This publication, Highlights of the September 2005 Webcast, identifies resources and key success strategies for engaging girls in STEM.

<http://www2.edc.org/itestlrc/Materials/engagegirlsapr06.pdf>

Recruitment and Retention [IdeaBrief, Volume 4, March 2006]

In this IdeaBrief, Principal Investigators from three youth-based ITEST projects discuss how community partnerships strengthen their efforts to recruit and retain diverse participants. Find out about successful and unsuccessful strategies these programs tried. http://www2.edc.org/itestlrc/Materials/ITEST_IdeaBrief_Vol4_RR.pdf

Cultural Relevance in Science Teaching [Webcast, June 14, 2006]

Join us on Wednesday, June 14 from 2:00-3:30 ET for a Webcast on Cultural Relevance in Science Teaching, co-hosted by Dr. Angelique Tucker Blackmon of the National Science Foundation and by staff of the ITEST Learning Resource Center (LRC). Dr. Tucker Blackmon and ITEST Project PIs and staff will share resources and approaches for culturally relevant science teaching. Contact Cynthia Newson cnewson@edc.org to register for the webcast.

Fostering Media-Savvy STEM Learners [Web Publication, June 2006]

The purpose of this publication is to articulate how students' STEM skills and knowledge acquired through participating in the ITEST projects relate to the need for information/media/digital literacy required in the 21st Century learning environment.

More events and publications are planned for the fall—check back later <http://www.edc.org/itestlrc>

From the DAMSALS2 team~

The **Delta Agriculture Middle School Applied Life Science (DAMSALS2)** comprehensive project provides professional development for 72 science teachers who in turn provide staff-supported IT instruction for 180 students in grades 7 to 12 from rural schools. DAMSALS2 uses an integrated science approach to deliver agriculture-related concepts. This project is based in the Mississippi Delta region of northeast Louisiana.

Teachers participating in the DAMSALS2 projects have encouraged their students to collect and use data for real-world applications in their community. Employing GIS technology learned from and with the teachers, the students are actively engaged in working on local issues—for example, mapping population changes post-Hurricane Katrina. In another investigation, they discovered that there is a shortage of fire hydrants around school. They also investigated wildlife habitats and invasive species, and mapped a key archeological site in their community. These benefits accrue to the community as a result of **student and teacher engagement that is supported by various STEM-related partnerships and strong peer-to-peer teacher leadership** provided by DAMSALS2. The success of our model is documented in our impact evaluation, which reveals teachers' improved technology skills and science content knowledge, and a more confident attitude about STEM—and higher academic achievement across the board for the students.

http://www2.edc.org/itestlrc/itestprojects/damsals2_la.htm



Franklin Parish students with the DAMSALS2 project use dataloggers to gather information for class project.

From the DAPCEP team~

DAPCEP's youth-based **Engineering and Information Technology Education Project** aims to engage students in activities that will increase their access to IT within the context of engineering and increase their opportunities to

explore related college and career paths. One hundred twenty African American and Latino 7th and 9th grade students and 180 parents participate in carefully planned courses designed to expand their knowledge of engineering and to lay the foundation for successful lifelong learning related to a range of IT. This project is based in Detroit, Michigan.

Our recruiting process includes going to different schools and getting out to talk to students. We send a lot of mailings to parents. And, with the hope that the letters will be shared with teachers and their students, we also send mailings to principals. After we go through all this, we usually get quite a few more students who apply than we can accommodate—qualified students, students who are interested, students who have good grades in math and science and who are recommended by their teachers. Unfortunately, we have to turn students away from the program. **Remember that they have to give up Saturdays in the spring and fall and four weeks in the summer—without getting any stipends or any credit for school. They're standing in line and eager to participate!** And yet we still have to turn students away. This is where we're coming from when we go to our community partners, universities, and corporations. They see that these kids want to learn, and hopefully this is one of the ways that we can sustain and expand our program. Funders are motivated by how many parents and students are engaged.

http://www2.edc.org/itestlrc/itestprojects/dapcep_mi.htm

From the DesignIT Studios team~

The **DesignIT Studios youth-based project** creates four IT studio sites to work with 160 7th and 8th grade students. The four project sites—a central site at the Fort Worth Museum of Science and History; sites at each of two Boys and Girls Club branches; and a site at a local school, the Applied Learning Academy—infuse digital technology and science, math, and engineering concepts into a creative art studio environment. Projects, springing from the children's own cultural backgrounds and interests, incorporate commonplace materials with digital media to naturally create fluency in IT. This project is based in Fort Worth, Texas.

In the midst of our third year as a part of the ITEST program, we continue to promote IT fluency and to cultivate student interest and engagement with digital technolo-

Spotlight on Strategies for Sustainability

"Don't wait until the end of your project to think about how to obtain additional funding," urges **De Anne Stevens, PI of the MapTEACH** (Mapping Technology Experiences with Alaska's Cultural Heritage) project. Now beginning their third year of NSF-ITEST funding, the collaborative MapTEACH team is developing a culturally responsive geoscience education program for 160 middle- and high-school students and 16 teachers in Alaska that emphasizes hands-on experience with spatial technology (GPS, GIS, and remote sensing imagery).

In her presentation on the topic of sustainability at the ITEST Summit, she explained, "To achieve long-term project life, our thinking rests on:

- **Fundamental project design** that emphasizes independence from additional resources. *For example, our project utilizes GIS software that is free, simple, and platform-independent, curriculum that can be successfully taught with or without internet access, and lessons or groups of lessons that can stand alone for independent teacher use.*
- **Integration** of project elements into existing long-term projects, including community, formal-education and government agencies. *For example, partnering with the Alaska DGGs provides a variety of ongoing services and resources such as free curriculum materials, consultation, and assistance in locating and acquiring data that applies to each local community.*
- **Opportunities for ongoing/additional collaboration and funding** after the ITEST program ends. *For example, we plan to continue collaboration with our state and regional education departments to offer ongoing teacher training sessions."*

And, perhaps most important, "we are integrating with communities—community buy-in and involvement in the project is critical to maintain project momentum. We tie in with local community leaders and members, and GIS practitioners to share our materials with the experts, help them understand the importance of the dataset of MapTEACH, and connect the topics of importance to the community with each of them."

http://www2.edc.org/itestlrc/itestprojects/mapteach_ak.htm

their time in virtual environments, and when I walk into schools—I would like to see more of that kind of science being taught."

In praise of the design of the ITEST program, **Carla McAuliffe, Co-Principal Investigator of the Eyes in the Sky** project, commented: "Having students with teachers in the summer institute... this ITEST model is extremely empowering both for the teachers and the students. The teachers get an opportunity to see if they can in fact work with this technology with students and the teachers are equally amazed at how quickly students pick up the technology."

The importance of intensive professional development programs such as ITEST was also addressed later by **David Saedi, CEO of Certiport**: "We have to allow enough time for teachers to become acquainted with the tools of technology before they can integrate them into the curriculum."

Relevance and Replicability of ITEST Projects

The Summit culminated with a public symposium, which was offered to the wider public via webcast, in partnership with Learning Times. Panelists from industry, education, academia and government shared with ITEST projects leaders their ideas on building the IT skills of students and teachers through experiential, learner-centered STEM activities, and explored effective ways to build awareness of technology and related careers in both formal and informal learning environments.

Participating in a panel discussion on the learnings and replicability of ITEST project work, **Norman Fortenberry, Founding Director of the Center for the Advancement of Scholarship on Engineering Education at the National Academy of Engineering**, asserted, "We should seek out opportunities both to incorporate ITEST's deep content and approaches into STEM courses and also to use the examples found in ITEST as technology rich contextual learning for non-STEM courses."

Gil Noam, Director of Harvard's Program in Education, Afterschool, and Resilience (PEAR), observed: "Many of the ITEST projects are path-finding, not just the individual projects but the networks of projects." He continued:

"When we look at the extra 15 hours for the typical after-school program—I think the great danger is institutionalizing kids in mediocre settings. We have to make these hours productive. On the youth development side, the general consensus calls for environments to be project-based, exploratory, experiential, relationship-based, field-

based, accepting different learning styles, and choice-based (i.e., what the kids want to participate in). If we agree that these are the ingredients, especially the notion of agency that's so important in the middle school and high school years:

What are my questions, how can I work on a team? What curricula will I chose, what technology can I engage? These are the questions that ITEST is asking and the field needs answers for. I do think we have a great chance here to connect the work with other creative innovations for the out-of-school sector. The ITEST projects are highly replicable models. It's the job of all of us to demonstrate that they work, to have good research that demonstrates this."

*"Dynamic, place-based education is a fully transferable model."
-Dan Calvert, Salmon Camp*

Similarly, **Ted Chen, the Youth and Education Program Director for the W.K. Kellogg Foundation**, emphasized the importance of youth voice/youth choice and authenticity in youth programs. He observes a "paradigm shift from teacher/adult as embodiment of all knowledge to the young people as actors, agents of their own learning... I think it's the relevance that young people are trying to feel as they engage in learning."

With regard to sustaining and replicating ITEST programs, he proposed that "one of the keys is going to be a need for greater engagement with private sector business and industry partners. You all feel the pressure of standardized tests and the No Child Left Behind act, but I think there's a growing divergence between the academic push and what industry is asking for in terms of jobs and careers." This "notion of engaging business in meaningful ways" was picked up again later when **Marjorie Bynum of ITAA**, addressed the convening.

Embracing Diversity and Growing the Workforce

The symposium centered on the theme of Equity and Diversity, which provided a forum for recognizing and reflecting on the goals of the ITEST program and the various specific steps being taken relative to this theme. **Marjorie Bynum, Vice President of ITAA (Information Technology Association of America)**, asked: "What role does industry need to play in working with the education community and government on workforce development? One of the issues that ITAA has been working on is diversity." She emphasized, "We're now talking about diversity in the context of workforce competitiveness. The under-represented groups (women, African Americans,

Hispanic Americans, older workers) in the high-tech industry constitute untapped talent."

She offered two key recommendations: "having CEOs and leaders who embrace diversity in practice; and identifying best practices.... How do we create greater synergies between what employers are doing and what education, government, and community organizations are doing?" Moreover, she asserted, "Industry has to do more outreach to the education community to show what is required (i.e., skill requirements). We (ITAA) are building the Coalition for America's High Tech Future, bringing together industry leaders and university presidents, to look at how we develop the most robust workforce that we can. We want to expand our reach, to parents, to middle schools, where math and science are so critical."

• Incorporating Equity and Diversity in an Evaluation Framework

These concerns about diversity and equity are primary for the evaluation team of **Jennifer Greene and Jori Hall, of the University of Illinois**. In developing their evaluation framework for large, multi-site programs, Jori Hall reports, "We want to know who is participating and how. Who is involved and who's left out? How does the program meaningfully advance those that are traditionally under-served?"

She elaborated on this evaluation framework: "Dialogue... helps to get out those assumptions people have about their projects. It's also connected to something that is called program theory, which is basically the logic of the program." She continued: "Embedded in those assumptions are ways of thinking about 'why is it that an afterschool program will increase the interest of Latino girls in IT', for example. We want to explicate those ideas... We want to be educative."

"How does your ITEST program disrupt damaging histories? How does it address past inequities? How is it welcoming and supportive? What types of measures are you taking to ensure that those things are happening?"

-Jori Hall, University of Illinois

• Inclusiveness and Accessibility

"The first question that I want to raise is, are we asking the right questions?" began **Mary Lester, Executive Director of the Alliance for Technology Access**. "Are you asking why instead of how?" She reflected, "I think as a society we are in general still asking the question why.

'Why should we be doing this? Why do I have to? I'm not seeing people with disabilities in my community.'"

She encouraged project staff to ask themselves: "Have we discriminated inadvertently? Are there people with disabilities in our programs? If not, why not? How do we change it? Are there barriers to our programs for people with disabilities that we haven't addressed and may not be aware of?"

ITEST Going Forward

Many of the thought-provoking questions raised throughout the meeting provided fodder for contemplation, investigation, and reflection. The ITEST program continues to illustrate how central and interconnected its themes are to a range of stakeholders. Formal educators recognize the importance of new skills and approaches that match the needs of the 21st century workforce. Youth development advocates understand how their historical focus on enrichment and experiential learning can complement the school day. And, diverse groups of young people can be drawn to STEM if learning is engaging and relevant to their lives and needs.

SPOTLIGHT: MYBEST

By Leslie Goodyear, ITEST LRC

In March 2006, I had the chance to visit the MyBEST program at the Science Museum of Minnesota (SMM). This youth-based project is a collaboration of the Youth Science Center and Learning Technologies Center at the SMM, which occupies a beautiful new building overlooking the Mississippi River in St. Paul.



MyBEST teens work on animations, movies and other pieces to submit to a Youth Media Festival being held at the Science Museum of Minnesota in May.

Abe, a ninth grade student who volunteered to give a comprehensive tour of the MyBEST space, showed me the computer stations where students were busy making animated movies. The program space was lively and interactive, with students working independently and in pairs, consulting staff when they needed guidance.

Vivian Guilfoxy, Senior Vice President of Education Development Center, Inc., underscored the innovations coming out of the ITEST program: "We have to include our young people as real partners in this process. The ITEST projects are helping us learn directly from our youth participants about what it takes to innovate and create using technology tools in the service of STEM."

Striving to be both "path-finding," to borrow Gil Noam's term, and inclusive, the values and value-added of the ITEST Program indeed resonated at this third convening of project teams, NSF program officers, and guests.

Related Resources

ITEST Summit Symposium Webcast Archive
<http://home.learningtimes.net/itest>

ITEST Summit Media Snapshot
http://www2.edc.org/itestlrc/Materials/April_2006_ITEST_Media_Snapshot.pdf

ITEST Projects Profiles
<http://www2.edc.org/itestlrc/itestprojects.htm>

Abe explained how the program works and introduced me to the other student participants. Students chimed in during the tour to show off their latest projects: one girl was using images captured from the internet to make a movie about a penguin who loses his way; a pair of boys was making stop-action animated short movies; and another girl was building the figures that would star in her animated short. The boys convinced me to be part of a stop-action animation in order to demonstrate how the camera and editing software worked. They also played the claymation movie they had just finished creating. With obvious pride in his program, Abe made sure to show me artifacts from previous projects, including pinball machines and automatons.

Kristen Murray, Co-Principal Investigator of MyBEST, noted, "Now that we're in the third year of the project, the teens (especially the ones who have participated for a couple of years) have some history behind them. They have a wealth of past projects to talk about, and they are generally excited and comfortable sharing what they do in MyBEST with others."

http://www2.edc.org/itestlrc/itestprojects/mybest_mn.htm