



In This Issue

In anticipation of the ITEST summer programs starting or continuing this year, the ITEST Learning Resource Center (LRC) has summarized the strategies and lessons learned that four Cohort 1 project teams shared last fall. The LRC interviewed staff and participants from **DesignIT Studio**, **Inquiry-Based Marine Biotechnology** and **Bioinformatics**, **MyBEST: Mentored Youth Building Employable Skills in Technology**, and **Ocean Explorers**. We asked a series of questions about technology use and teaching methods in summer program activities in an effort to capture insights that can inform program design and practices in other ITEST projects and beyond. For more information, please see the original publication, *Lessons Learned in Summer Programs*, which contains extensive discussion and reflections by project team members and participants. The publication is available at http://www.edc.org/itestlrc/Research_Practice/lessons_learned.htm.

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.



Summer Programs Tips & Tricks: *Strategies and Lessons Learned*

Across Programs:

- **Give participants immersive experience, including their own space and pace for learning**

"An inquiry starts with ample time to mess about with materials, programming language, [and] technology, so that the young person can become comfortable with it and then can develop a creative idea . . . allowing the time for them to come up with a novel question." - Chip Lindsey, DesignIT Studio

"There were many differences in skill levels, so we had different activities that they could do at their own pace—also, [we offered] computer lab open hours. The program was designed with a couple specific questions and lots of possible offshoots. Then some teachers got into their own questions."
- Simona Bartl, Marine Biotech

- **Balance exploration and experimentation with more structured activities**

"When kids were first coming during the school year, and Saafir was getting to know them, they were much more tentative; when given the opportunity to experiment, create, they became more comfortable with the technology in the summer immersion program." - Chip Lindsey

"I've had the most unlikely students get engaged [in GIS] . . . The students can take control. They're actually making things happen; they can search data, interpret data. . . . With the Mapping curriculum, kids are led through the whole inquiry process."
- Keith Miller, Ocean Explorers teacher participant

- **Involve field experts and advisors with fresh ideas and new technologies**

"Guest presenters are a source of inspiration; they're expert mentors who help us think about how best to do our activities, and offer a career aspect—making certain passions more real." - Kristen Murray, MyBEST

"They had guest speakers, including a UC Santa Cruz scientist who's working on the Human Genome project: a woman and an American Indian. I want her to come in to meet my students. Another grad student who works with Simona is a Hispanic male. I want my students to see that a variety of people can become scientists."
- Linda Perkins, Marine Biotech teacher participant

- **Have small groups, encourage collaboration, and build community**

“Working with teachers over a three-year period is kind of a dream, but also a different challenge. Teachers develop cohesiveness and enthusiasm. Better to work with smaller groups for the camaraderie.”

- Steve Moore, Ocean Explorers

“I noticed how hungry everyone was for social time . . . and I finally realized that this is an important service of the summer program (as distinct from afterschool) and stopped fighting it. This community aspect was more important than during the school year.” - Kristen Murray

Unique to youth-based programs:

- **Make content relevant to the young people’s lives**

“We’re trying to make the program work with the kids’ lives - looking, listening to barriers, real or perceived. . . . Institutionally, we learned a tremendous amount about going outside our walls - in order to be relevant.”

- Chip Lindsey

“If [students] can relate to the topic in real life, they tend to show more interest in participating. . . . Kids work harder on the stuff that’s more relevant to them.”

- Mary Ann Steiner, MyBEST

- **Plan opportunities for youth to present their work to the public**

“When we gave them opportunities to present their work during National Engineers’ Week on the museum floor alongside professional engineers—it helped to motivate and focus them. They were able to interact with museum visitors and get feedback on their work.”

- Abdur-Raheem Saafir, DesignIT Studio

- **Involve adult mentors for youth**

“We do a lot of reflection groups. The mentors and adults walk around and talk with the kids while they work. They come back together and talk about what worked and what didn’t and then go back to working again.” - Mary Ann Steiner

- **Increase parent involvement**

“The feedback from the parents was so positive. One dad was a mentor. We will continue to involve parents next year. . . . My favorite part was the focus groups: nine parents in one and four in another. The evaluator particularly wanted to be there with the parents.”

- Mary Ann Steiner

Unique to comprehensive programs:

- **Connect material meaningfully to the classroom**

“With lesson plans, we’re helping teachers make connections for using this material in their classroom. We invited a guest teacher to talk about how he’s using this in his classroom. Plus, they will have follow-up classroom visits, to tailor how it fits.” - Simona Bartl

“It’s important for teachers to have something they can bring home to the classroom. In their workshop they want to see connections to their classroom. We’ll point out highlights in a lesson plan . . . when we didn’t have a curriculum, it was more frustrating for them.”

- Steve Moore

- **Offer some simple, smaller activities that teachers can do with their students**

“Although the point was not to give just canned activities (plenty of that around in other programs), we realized it would be helpful to have more ready-made activities available.” - Simona Bartl

- **Involve veteran teachers as mentors**

“What’s wonderful about this project is I’ve been able to identify ‘master teachers’ who do this kind of thing - they’ve shared with struggling teachers their techniques for breaking things down into class periods. Teachers really listen to other teachers, on challenges that I don’t even think of.” - Steve Moore

- **Align content with standards**

“A concern of the teachers: ‘How is it going to help me teach the topic?’ It’s the standards issue - making sure that there are ties back to California and other state standards. This issue has been underscored by teachers this summer. We’re helping them out any way we can to make this easy for them to implement in their classrooms.”

- Steve Moore

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a project at Education Development Center, Inc., under contract
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