UnBoxed

A Journal of Adult Learning in Schools

HTH Graduate School of EDUCATION

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UnBoxed is a journal of reflections on purpose, practice and policy in education, published twice yearly by the High Tech High Graduate School of Education.

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UnBoxed welcomes submissions from teachers, administrators, students, teacher educators, policymakers, researchers, and other informed observers of education. In addition to reflections on practice, submissions may include essays on purpose and policy, accounts of teacher research, scholarly articles, project designs, tools, photography, art, and student work. Send submissions to unboxed@hightechhigh.org or to HTH Graduate School of Education, Attn: *UnBoxed* Submissions, 2855 Farragut Road, San Diego, CA 92106.

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cover: *I am the Future* by Johnny Loera, senior, High Tech High

Welcome

The Editors

Welcome to the inaugural issue of *UnBoxed*, the journal of the High Tech High Graduate School of Education. We hope that *UnBoxed* will serve as a forum on adult learning in schools.

In this and future issues, we invite you to engage in dialogue about purpose and practice from a variety of perspectives. Look for reflective narratives about teaching and learning; designs and tools for project-based curricula; analysis of educational policy as it affects small schools, pedagogy, and teacher certification and professional development; accounts of teacher action research; and, always, the work and voices of K-12 students.

As you will notice, UnBoxed contains both a bound journal and a set of sharable cards. The journal offers essays on purpose, structure, and practice at HTH and beyond. In our guest interview, master teacher Ron Berger discusses his efforts to help teachers develop beautiful work with students. Three articles place our new GSE in context: Larry Rosenstock offers a rationale; Stacey Caillier discusses why teacher action research is the central activity of our program; Jennifer Husbands describes the policy context of alternative credentialing programs. The rest of the articles are about teaching practice at HTH schools. Jeff Robin offers practical advice on project design; Marc Shulman describes his efforts to assess student work equitably in a heterogeneous setting; Randy Scherer shares photos and student insights from a recent trip to Belize; Spencer Pforsich discusses blogs as a tool for teaching

The UN theater at High Tech High International.

and learning; and Aaron Commerson reflects on a project that didn't go as planned.

The cards offer quick, concrete glimpses of our work at High Tech High, from projects to exhibitions to processes for teacher reflection and program assessment. They are intended as tools and bits of inspiration, to be posted and shared among colleagues, community members, and anyone working for change in today's schools. Since no single card can convey the complexity of a particular project or process, each refers the reader to a web address where further information is available.

We hope you enjoy this first issue of *UnBoxed* and we encourage you to participate as a contributor. Our goal is not only to share what we are doing, but to engage in dialogue with schools and educators across the country, so that we may all learn from one another.

Read on, and join the conversation!

High Tech High graduate students in an action research course.

Why We Did It

Larry Rosenstock
President, HTH Graduate School of Education

When we opened the first High Tech High in September of 2000, we had no idea that we would ultimately be creating a Graduate School of Education. We were setting out to create a public charter high school that would prepare young people for college and beyond, but in a different way: through project-based learning, smaller classes, close student-teacher relationships, and a diverse student body with no tracking and with high expectations for all. We have since grown to include five high schools, two middle schools, and an elementary school.

The idea for a graduate school of education came several years later, and it came because we had a problem. The No Child Left Behind Act required that teachers in public schools be 'highly qualified.' While that seems a laudable concept, the definition of 'highly qualified' was limited to having a teaching credential or being in a credential program. But we had brilliant teacher applicants, many with advanced degrees and extensive experience in their disciplines, who lacked teaching credentials. Many were still paying off their student loans, and though they had a burning desire to teach, they were reluctant to go back to graduate school and assume additional debt.

We came to see the 'highly qualified' definition as a barrier to attracting aspiring teachers to work in our schools. Ironically, this barrier was erected during a time of massive teacher shortages, particularly in math and science. We realized that if we had a credentialing

program, then a new teacher with an advanced degree in their subject area would, by definition, be in a credentialing program the first day with us, and would therefore be deemed 'highly qualified.' In short, we could hire more qualified teachers if we could train and credential them ourselves. In any case, because our schools were growing, and because our project-based pedagogy was quite different than traditional approaches, we needed to develop our own structure for training new teachers.

In August 2004 we were licensed by the California Commission on Teacher Credentialing to offer credentials to teachers in our schools. We had to offer a regimen of eighteen courses, and the teachers had to pass a rigorous exam in their content area, but we were able to hire who we felt were the most 'highly qualified' teachers, regardless of credential status.

As we started credentialing new teachers, however, we encountered an additional problem: we were, and are, authorized to offer credentials only to internal candidates—our own employees who are the teachers of record in our classrooms. Yet, many aspiring and practicing teachers from beyond our schools were interested in our credentialing program, due to its emphasis on project-based learning and its strong integration of coursework and practice. Furthermore, we have found many prospective teachers who show great potential to teach in our schools, but who are not quite ready to be the teacher of record. It seemed a shame to let these people slip away. The solution to this problem was to create the High Tech High Graduate School of Education (GSE), which, upon accreditation, will enable us to credential aspiring teachers as well as teachers from other schools.

An additional benefit of creating a GSE is that it allows us to build on the extensive professional development already taking place in our schools. We currently offer Master's degree programs in Teacher Leadership and School Leadership to our own employees and other local educators who wish to deepen their practice and broaden their leadership capacity. Already we sense the effects: the GSE offers incentives for mid-career and other candidates to apply, to work with us, and to stay in teaching. It also affords us opportunities to develop leadership internally, both to strengthen our existing schools and to "seed" new ones. In future years, we intend to broaden our impact by offering a distance degree program based on a residency model to educators who live outside the San Diego region.

Since the beginning of High Tech High, we have worked to support a culture of reflection, collaboration and constant improvement in our teaching practice. Ample time for meetings, study groups, workshops, and teacher collaboration is built into our schedule, and experienced teachers mentor newer teachers. Yet having an institution of higher education embedded within our schools has increased this commitment exponentially. We presently have about 80% of our teaching staff involved in some type of formalized adult learning —either through our credentialing program, acting as a mentor, being mentored, teaching in our graduate school, or taking classes in our graduate school. We are becoming a 'wall-

to-wall' learning organization for students *and* adults.

We have envisioned High Tech High as a context for three integrations rarely seen in conventional schools: the integration of students across lines of class, race, and academic experience; the integration of academic and technical studies; and, through internships, the integration of school with the adult world of work. With the Graduate School of Education we are now positioned to carry out a fourth critical integration: of K-12 teaching with teacher education. Here, we can begin to imagine a broader significance for what began as a project to solve our local training and credentialing issues.

The HTH GSE offers us an opportunity to explore interesting and vital questions about schooling, pedagogy, and teacher development. If a typical graduate school of education offers 80% coursework and 20% practicum, we have turned that ratio upside down. Our graduate school is 80% practicum-based and 20% coursework. The GSE is fully immersed in the life and work of our K-12 schools. GSE courses focus on the issues of teaching and learning that educators encounter in their classrooms everyday. Conversely, our K-12 schools benefit from the reflection, dialogue, and inquiry that occur in the graduate school courses. We are now getting inquiries from educators and policy makers across the nation who are interested in creating clinical training sites fully embedded in K-12 entities. We look forward to exploring the possibilities with colleagues similarly engaged and intrigued.

Project: Analytical Cubism

Crafting Beautiful Work

Ron Berger
Expeditionary Learning Schools

Ron Berger has had an enormous influence on how High Tech High and many other schools across the country think about project-based learning. His approach is to engage students in the creation of "beautiful work" by showing them models, eliciting multiple drafts, and employing classroom critique as an instructional strategy. Ron joined Ben Daley and Rob Riordan of the GSE faculty in February 2008 for a conversation about his ideas, his teaching practice, and his work with educators.

INTERVIEWER

When did you begin to think of *beautiful work* as an organizing principle? It's something you rarely hear teachers talk about.

RB

I don't know when I began using the term, but it is a good descriptor for my passion because it applies to work in math and science and all disciplines, as well as artistic work. The notion is that what you do should be accurate and elegant; you should be proud of your work. And you're right: beautiful work is exactly what you don't hear discussed in conversations about education and test scores. It's always left out.

INTERVIEWER

How did you get started doing projects with students?

RB

For 28 years I was in a school community that used no textbooks. It was a project-based school and the curriculum was crafted by teachers, so there had to be continual discussion among the staff about what we were working on, continual peer critique, and helping each other shape curriculum. I think it would be very hard to do this well in isolation.

We were drawing off the heritage of Dewey really. Elliot Wiggington's Foxfire project was a particular inspiration for the idea of not only doing projects, but also having students empowered to run those projects and refine them for an authentic audience of people outside the classroom who really cared about quality. But there was also a tremendous history of project-based learning in the U.S. that I learned from.

For me, a lot of that heritage came from the arts and architecture. As a self-employed carpenter I designed homes and additions, and you would never do blueprints for anything without an incredible amount of critique from the homeowners, from engineers, from other builders, from architects. That process of many different iterations of the project and many improvements along the way was the ethic of what we did. And that ethic, of being a craftsman and carpenter and trying to do things really well, certainly spilled over into my sense of what a classroom should be.

INTERVIEWER

One aspect of your work that was new for us is the notion of using critique as an instructional technique to get at notions of quality, rather than simply to help a student with an individual piece of work. How did you develop that strategy?

RB

As an undergraduate visual arts major for a time, I sat through many, many group critiques of student artwork. They weren't always done with care for the emotions of those involved, and in fact were sometimes quite cut-throat, but what didn't escape me was the power of that structure, both for improving the quality of a piece of work and for setting standards for the dimensions of work that we cared about. I learned more in group critique than in any lesson, because that's where the great insights of a good art professor or a fellow student really came out. And it just seemed like that's the perfect structure for making anything better. We can use it to look at a wide range of work, from science experiments to math solutions to essays or stories.

The process also touches on something beyond critique: the use of models, so that kids have a vision of where they're trying to go. That has been one of the great learnings for me of the last twenty years. There is almost no area where models don't increase the quality of what we do. We assume that if we explain a project clearly enough in words, then kids will know where we want them to go. But it almost never works that way. In the absence of a model and a picture and a vision of what we want the final product or performance to be,

even the clearest rubric is not particularly useful.

When you grow up watching basketball on television you have a model of quality play, and you can say, "I know what Michael Jordan looks like and that's what I want to be. Those are the moves I want to have." But if someone gave you a rubric of what a good drive to the hoop would look like, and you had never seen a basketball game, it would be useless for you.

INTERVIEWER

What are you thinking about now as you're working with schools?

RB

It's been a very humbling experience over the past five years trying to support teachers and schools to collect good models and run good critique sessions. I've realized that it's harder than I thought and that a lot of it was intuitive for me. My task now has been to articulate the qualities that make those processes go well. Just having critique sessions doesn't mean that they're going to go well, and collecting models of student work won't automatically improve student work. There are vast differences in the models that you collect and how you use them. What I'm learning is how crucial some of those decisions are. For example, I've coached teachers to do critique sessions and then gone back to their classrooms to find that they've chosen very poor models that aren't compelling or evocative of the features that they're looking for students to create. And I've seen teachers who don't realize that the critique is really a lesson. And so they turn it over to the class, and it gets off on tangents, and the teachers don't feel empowered to re-direct the critique session to be an effective lesson for kids.

INTERVIEWER

Why do you think it is so hard to convey your knowledge and experience to teachers? What's going on in their lives, in schools, or in that interaction that makes it difficult for them to catch on quickly?

RB

Here are a couple things that get in the way. In my work with Expeditionary Learning, a lot of our work has been on new assessments for learning practices. And the most powerful of those is for teachers to have really clear learning targets for their lessons. But *learning target* is not just a new term for goal or objective. It means taking a lesson goal or state framework and putting it in kids' language and making it transparent to the kids, so you're saying to students, this is what we're trying to learn today. This is where we want to get.

What's become clear to me is that a lot of teachers don't actually have that much clarity. Their learning targets are often vague. And if they don't know exactly what they want to come out of it, then it's really hard to prioritize which features in the piece of work they

Project: Electric Duets

want to really home in on. If you're going to drill down on something, it has to be the thing that is your key learning target for that concept or that lesson or that day.

When I observe teachers doing lessons, I'll often interview them afterwards and say, "What was the most important thing that you wanted them to get out of that lesson?" And they'll just look blank for a moment and then say, "Well, there's a lot of things." But they haven't really thought ahead enough to be able to say, "When they leave this room, I really want them to have *this* clear." And if that were clear before their lesson, everything would have gone differently. I think that applies equally to a critique session or the use of models. Why did you choose that model? What is it you want to use it to show? Why are you showing it? It's about having that level of clarity.

Another thing that gets in the way is that a lot of teachers are afraid to be candid with their students about quality. A habit grows in classrooms of just complimenting kids, like, "Great work, Ben," or "This is really good," or "Nice job on that paper." But to make another sports analogy, the coaches that are the greatest coaches, that kids respect the most, tend to be the toughest ones. Not mean, but the clearest and toughest. The ones that say, "You're doing that all wrong, you've got to rethink this, or that was *terrible* today and it was absolutely terrible for these five reasons." I think people are afraid of candor with kids because they feel like they don't want to fight with them; they don't want to hurt their

Project: Build a Better Mousetrap

feelings; they don't want to step on them. I think that's a big mistake. I don't think clarity and candor means meanness or hurting kids' feelings. If you can be very specific about what's working in a piece of work and equally specific about what's weak, it's a gift to the student who created it.

Here's a perfect example: I conducted what I thought was a very effective critique session with a class of fourth grade kids, and the teacher was so excited about it that he wanted to take it on himself. He asked me if I'd come observe a couple weeks later. When I returned, he did a session using three models of work that he had collected from the kids. His method had been to rotate the kids through so that each got their piece used as a model for class discussion. That approach worked in terms of equity; every kid got equal airtime. But with a class of 28 kids you had 26 mediocre pieces, each of which was going to get a lot of airtime, three a day. It was wasting kids' time to spend day after day looking at mediocre pieces when there were only two that were actually worth looking at. And if I had been the teacher, I would have said, "Guys, this was a very difficult process to start and there's really great news. It really worked for two people. I thought it might not work for anybody, but there are two examples that came out yesterday that are really worth looking at as a class, and that's really exciting, and it happens to be Rob and Ben today and this is really terrific." It's important to be honest about it and not pretend that other kids succeeded when they didn't. So I felt like this teacher was just wasting their time looking at mediocre

papers in the interests of kindness and equity, but it's not kindness to me.

INTERVIEWER

What did you say to the teacher afterwards?

RB

I told him that if you give your assignment to 28 kids and not a single one comes up with something that you think worked well, then you've got to say that. And you don't blame the kids; you blame yourself. Because in truth it was your fault! You say, "So I gave this assignment yesterday and I got 28 papers back and not a single one worked, so I think I really failed. I didn't explain something clearly so I've got to re-frame it for you and you've got to give me another chance; we've got to try this again"—rather than assume that since you assigned it, it's worth critiquing all 28 papers.

It's all about having high standards and keeping to them, owning them with the kids and not pretending success is there when it's not. That success is going to emerge in unlikely moments for individual kids in ways that are great to celebrate in big and small ways. If you're feeling bad for Ben because his work has not been very good but he's been trying hard, it's still best not to give him false reasons to celebrate the work. When one day there's one small feature of Ben's work that's really stellar, that's when you pull it out and say, "I've just got to tell you guys that there were a lot of essays done yesterday and I've got to show you one from Ben, and it's not perfect, but the opening line or the closing was so incredible and let me read it to you and let's look at why it works." You wait for the legitimate moment when you can honestly celebrate Ben having created something terrific, even if it's a tiny portion of the work.

INTERVIEWER

Is there anything else that gets in the way as you work with teachers?

RB

A lot of teachers don't have good models of work. They don't have something of high enough quality for kids to aspire towards. For example, I always had kids do reflections on themselves as writers, but the kids tended to be very shallow in their self-assessments as writers or workers or students. And I was at a teacher group meeting at Harvard, complaining, "Well, I read really good reflections from some of your classrooms, but my students tend to be shallow and brief in their self-assessments as thinkers." And one of the teachers asked, "Have you shown them models of what really good reflective writing looks like?" And I said, "No I haven't. I don't have any." And she laughed and said, "You spend your time telling people to use models and *you're* not using them, and now you're wondering why your work doesn't look good?" And it occurred to me that my students had never seen a model of really thoughtful reflection, and I didn't have any. So I borrowed one that was really powerful. It wasn't from my class, and it wasn't from a 6th grader, but

when I used it with my students, this light went off for all of them that was like, "Oh, this is what good reflective writing looks like." And I realized that the impediment to them doing high quality work all along had been me. It had never been their capacity. It had been my inability to show them a model of what I had hoped they would get to. And as soon as I showed them the model, everything changed. It was as if they said, "Oh, this is where you want us to get to. OK. Let's analyze it and figure out why it worked." I just hadn't provided them with a good model.

INTERVIEWER

If I'm doing a new project that I've never done before, how do I go about getting models?

RB

First of all, think about which projects you've done that are similar, where you had stellar work, where you can say, "This isn't exactly the same project, because that was a memoir project and this is a historical biography, but let's look at how voice is used in this or let's look at how organization is done in this." It's better to use a model that's similar than no model at all. If you have a vibrant professional community like I luckily had in my school and you incredibly have in High Tech High, you can borrow models from your colleagues, even if it's not the same grade level. Do whatever you can.

Another approach is to get models from the professional world. That sometimes works very well and sometimes doesn't. There are occasions in which models from the professional world are perfect, especially with secondary kids, as they should be able to get close to that anyway. But sometimes models from the professional world are just a little too distant for kids, and for them, to see a ninth grade essay that's stellar is more powerful than reading an adult essay from the L.A. Times.

INTERVIEWER

What sustains you in this work?

RB

What sustains me is that I love running critique sessions with students and then returning to that school and seeing the kids proud of their beautiful work, saying, "Look at how it turned out. We did this!"

Jeff Robin and student discuss a work in progress.

PME: My Advice to You

Jeff Robin
High Tech High

A founding faculty member of High Tech High, Jeff Robin has influenced the processes of project design and presentation across all HTH schools. Here, with characteristic candor, he shares his thoughts about the planning, management and exhibition of student projects.

Project-based learning is difficult to do well, but it is worth it! (Keep repeating this even when you're covered in sawdust in the middle of the night on the weekend at school.)

When Ron Berger, the noted evangelist for project-based learning, came to High Tech High for the first time and saw my digital portfolio, he told me how great he thought it was. I was flattered and proud of myself. Then he said, "You should put all your projects online, and all your students' work too." Now I work harder showing the work than I do helping my students make it. I refer to Ron as my nemesis, half joking and half serious. But I know that having exhibition as an end goal, and knowing from the outset how the work will be displayed, helps me teach.

Planning, management and exhibition are equally important components of project-based learning. Without *planning*, the teacher is frantic, the students are bored, and the results are sloppy or non-existent. Without *management*, the students procrastinate, fall between the cracks, make work that they don't like, and think

the class is a joke. Without *exhibition*, the adult world connection is gone, the reflective moment is lost, and the money, time and effort of the project are wasted. We have all offered excuses as to why we did not have planning, management and exhibition (PME) in place, insisting that the project was successful anyway. But when doing a project it makes a huge difference, for example, if you take the time to do the project yourself ahead of time, set every Wednesday as a check-in day, and figure out before the project begins how and where the work will be displayed.

Planning

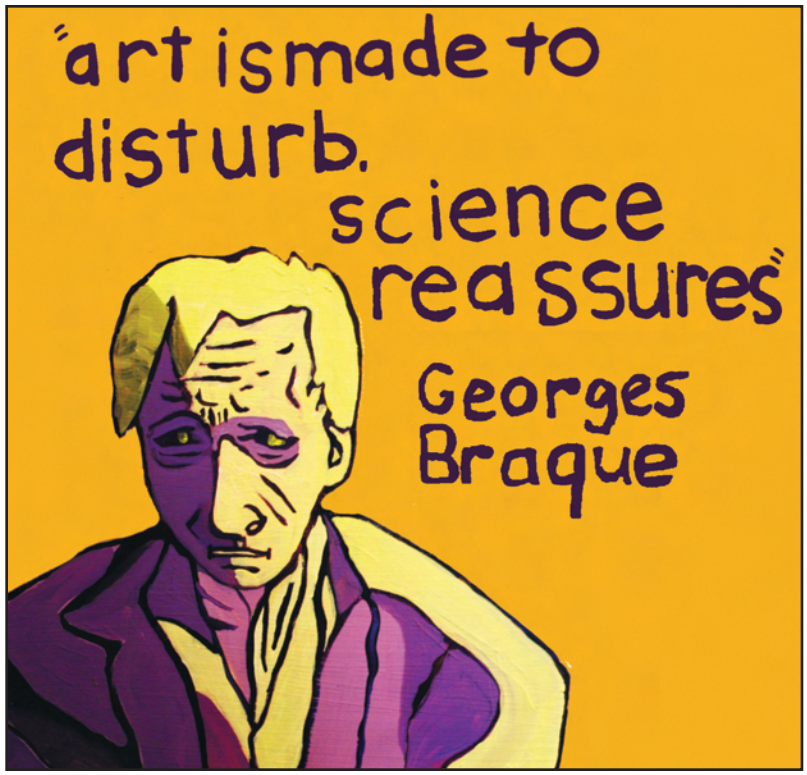
Project planning can be complicated. You really have to know what you're asking the students to do and how they will present their project, long before they finish. I always do the project myself first. That way, I can see if it is feasible and worthwhile, and if it looks good. If I can't do a good job on it, then I figure the students will be at a serious disadvantage.

Here is an example of how I might plan for a semester-long class of seniors (three projects, ending in an exhibition), and what I think about when doing so. Remember: simple instructions beget complex results, while complex instructions limit results.

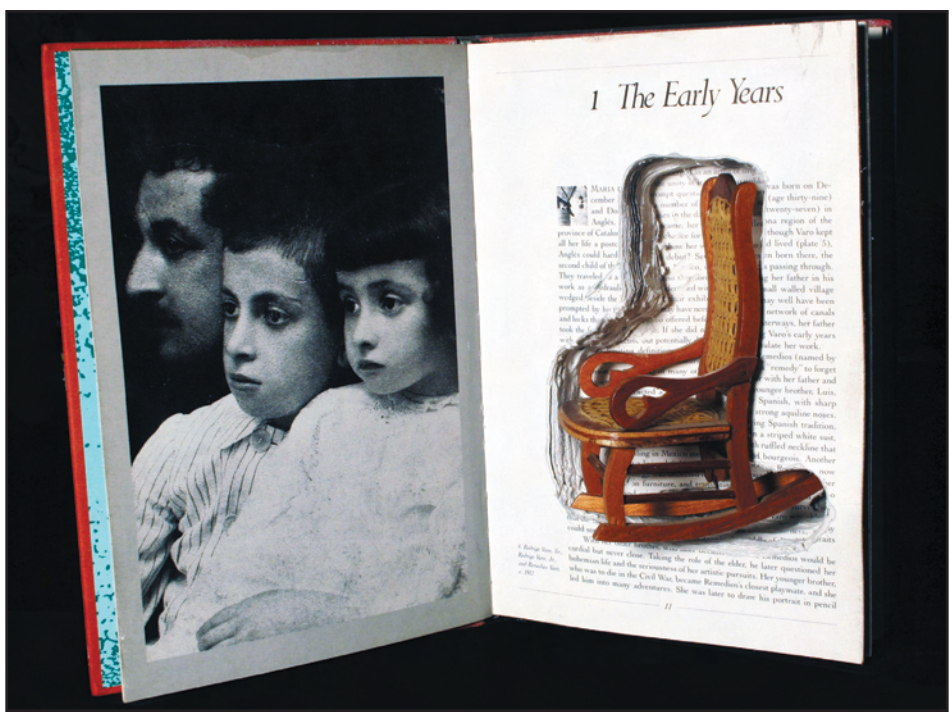
Project 1: Quote Painting
For the quote painting, students select a quote of interest, then illustrate it by painting a portrait of the person who said it. I am thinking it will be election time, and there will be a lot to say. The kids will learn how to alter images digitally and how to mix paint. They will understand that edge is important and value matters more than color. Ironic and humorous quotes will be encouraged, hate speech is unacceptable, and lies are not permitted (spin is lying).

The quote painting is a great small project for getting things on the wall fast. It will take two weeks. I'm sure of that because I made one in two hours, and experience tells me that one hour for me equals one week for my students. We will display this work in the entryway at High Tech High.

Project 2: What could you hide in a book?
In this sculpture project, students hollow out a book and place something inside. This is a cool assignment because the "book" is hiding something. When I made one, I experimented with six different glues, and the only one that worked well was rabbit skin glue (I really hope that it is just called that). I used a Dremel router to hollow out the book. This project, too, will take two weeks to make. These books will be displayed in boxes on the wall. I have already prepared boxes of many different sizes, and I can easily make more if necessary.



Project: Quote Painting



Project: What Can You Hide in a Book?

Students will brainstorm different concepts that can be represented in their books. We will critique their ideas in class. The students will make mockups in Photoshop of their ideas, incorporating qualities like these:

Something disturbing
Something that makes no sense
Something that shows repetition
Something that shows classicism
Something that shows mythology
Something that shows social injustice
Something that shows love
Something that shows desire
Something that shows how open-minded you are

Project 3: Mini Kiosks with Video
Students will begin the project by making a DVD. The subject will be artists and their work, or a variation of this theme—maybe an art style, movement or theme. I'll have them pick an artist, and if the kids propose a writer or musician, I'll determine if it is okay. I don't want music videos; I want thought and artfulness.

Working in teams of two, students will have two weeks to complete the DVD. Too much time wasted will kill this project. Then, using graphics from the DVD, they will make a kiosk that will house their DVD and draw people to it. These video kiosks will be placed around the school, near wall sockets so the video can run continuously. I made the kiosk pictured here using a DVD player that my kids had, but we have old laptops around the school that students can use.

All three projects will be complete at least two weeks before exhibition night. Each student will write a review of another student's work for the semester. These reviews will be displayed at the exhibition and on the web, providing a critical view of each body of work.

Management

To be a good manager you must be consistent. That is hard; however, after freak-out deadlines and poor and incomplete work, I've decided to be consistent. It's easier that way.

Setting Deliverables
I post due dates on the web.

Weekly Check-ins
I make a list of all the things that students need to do by the next check-in, and then they

Project: Mini Kiosks with Video

get 10 points if the work is completed on time. I use a receipt book from a restaurant and provide them with copies, so we are on the same page.

Quality Checks

The expectation is that if the student does not do his/her best and work hard, the project will not be displayed. Only three times in the past eight years has a student worked his/her hardest and had a project not turn out. This tells me that working hard is the key that separates the work that goes up on the walls from work that does not. The important thing is to communicate clearly your expectation of hard work the whole semester through check-ins and daily reminders.

Exhibition

Exhibiting projects is a difficult task. Sometimes you get lucky and it comes together on its own. Mostly it takes planning and skill to do it well. I personally have been knocked

Project: Analog Flash for Windows

unconscious hanging a ceramic mobile. I saw stars, and if I had planned it better and thought it out I would have never been in that position, 15 feet in the air on a lift, unconscious.

Disclaimer: I am an artist. I have framed many art shows and hung lots of paintings and prints. I have built houses and have been in and out of construction for 22 years. So, I have an advantage in that I know my materials and how things have been historically displayed. Still, I visit art museums and science museums as much as I can, looking at the art or the science but also noting the way it has been displayed. I read about curatorial theory in *Art in America*. I check out the way store windows and interior displays are set up for new and creative ideas. What I am saying is you have to keep working. You have to keep looking at the world around you, and the way things are designed, to get fresh ideas for exhibiting student work. There is no silver bullet or magic pill, just experience and the habit of

looking at your own work in a critical way.

If you are just starting out and haven't done exhibitions before, make sure to have the students finish their work ahead of time so you can try different things. If you can lay the work out, you can see what it will look like all together. Symmetry is very important. If all the projects have a similar component that makes them look like a series, or at least pieces tied together in some way, it will be easier to design a display that expresses a coherent idea to the viewer.

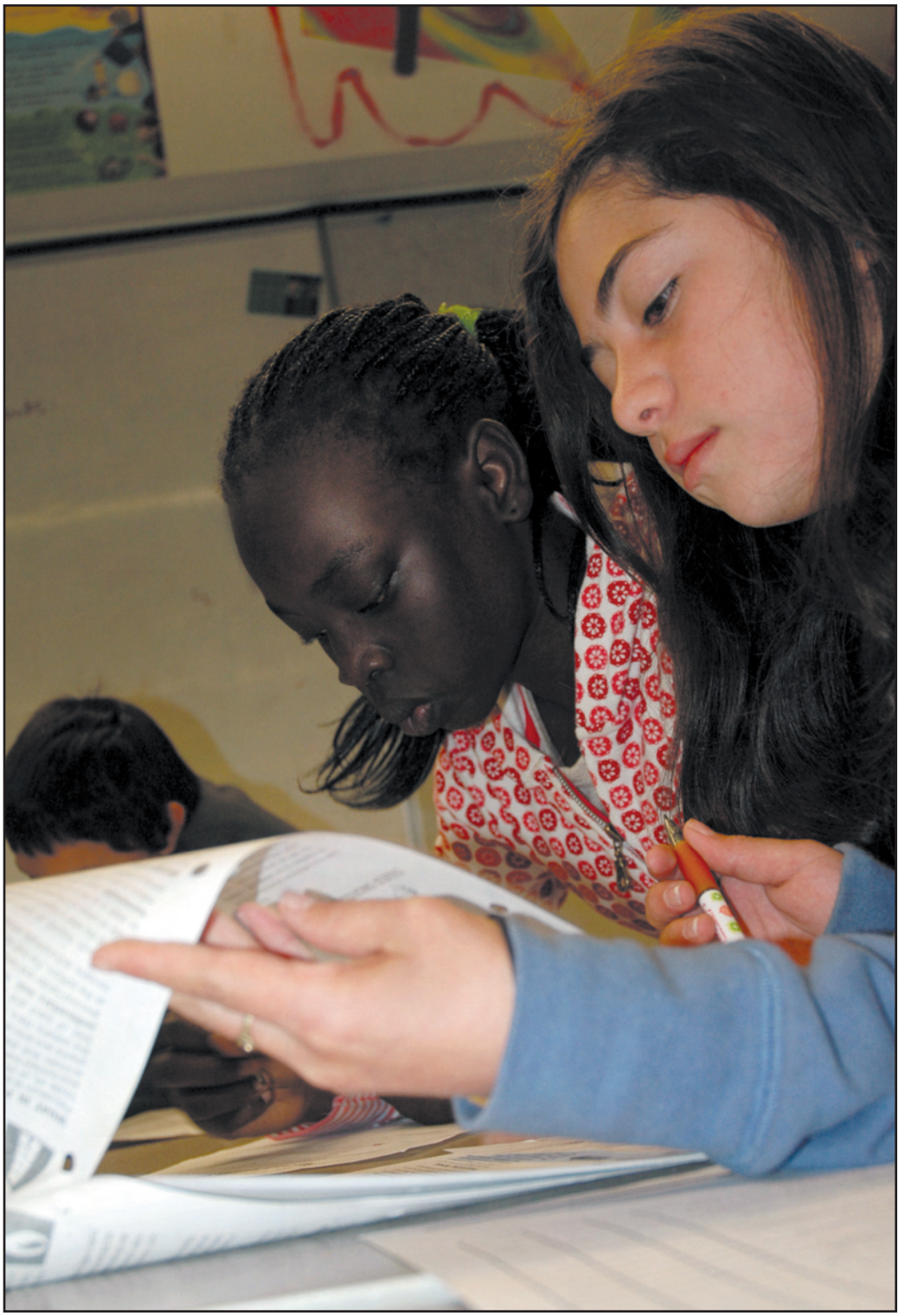
A good example of this is a project I designed last year: Analog Flash for Windows (for a full description, go to http://jeffrobin.hightechhigh.org/index.htm). In this project, students had to work in pairs to make an interactive art piece that explained a physics or mathematics concept for installation in a 24" x 24" x 5" window box. As you can see here, we got a lot of different results, but they all look connected to each other.

Even if the works are different, you can hang them on the same level, and the cards that explain the work can be hung at the same level. All the descriptions should be written on the same size card, using the same font, size and title format. Go to a museum and take a look: symmetry!

Timing is everything. You need to plan to hang and display work, just as with everything else you do as a teacher. Figure that if you think it will take one hour to display a project, it will take three hours.

All of these things that I have suggested will come together in time, as you start to evaluate the projects you've done with your students. You ask the students to analyze and evaluate their work. What would you give a student who handed in late, unfinished, sloppy work that was poorly displayed? Now look at the way you have planned, managed and exhibited your students' work. What grade should you get?

The easiest and most successful way to teach is to plan. I can't believe I am saying this! I have really changed. Good Luck!



Sixth grade students work on a group assessment in an integrated math/science class.

Achieving Equity in Assesment

Marc Shulman
High Tech Middle Media Arts

I close my eyes, take a deep breath, and shout, "Go!" It sounds like I am standing in the middle of Qualcomm Stadium and the Chargers just won the Super Bowl. But it's not cheering I am hearing—it is students helping students. It may be the sweetest thing I have ever heard. I look to my left and I hear a student say, "Tell me the steps you went through to solve that." I walk to my right and I hear, "Are you sure that's what the next step is?" I keep walking around and I keep hearing students challenging each other, playing devil's advocate in math. I think this is actually working!

I remember when a college professor of mine said something that would change the way I think about everything around me. He said that the equal treatment of unequals is the worst practice in teaching that still occurs today. This happens not only in the classroom, but everywhere around us. Treating everyone the same isn't the right thing to do. It may sound great on paper, but it does a disservice to everyone involved. It may sound like you are doing the right thing if you are giving every student the same options, opportunities, or advantages. But is that what they all need? To me, teachers who teach the same thing to everyone are creating a learning environment that is not conducive to every student in the room. To teach equitably, one must look to the needs of each individual student.

Our goal as educators should be to veer from an equal learning experience toward an equitable learning experience. Our job is to make sure all students have a fair, and possibly

unequal, learning experience. Ensuring that each student has a fair opportunity to succeed means that one student's path may look very different from another's.

I have been restructuring my assessment practices in class lately because I tend to see the same students failing repeatedly. I came to the conclusion that maybe it isn't them, but that my assessments aren't up to par with what they need. When I started asking some of the students why they believed they got the grade they did, I got some interesting responses:

"I thought the quiz was on something else."
"I didn't have room to write my answers."
"I don't remember covering that material."
"I couldn't memorize all the steps."
"I didn't get some of the questions."

None of these responses were positive in nature. I began to wonder: How might I change students' perceptions of assessment and raise their confidence in the classroom?

Recently, I have been focusing on how to assess students in math, particularly students with an Individualized Education Plan (IEP), while maintaining equity in the classroom. In the past, I have modified the actual test in various ways. I have changed the number of questions, written tests in native languages, even written quizzes below grade level just to build confidence. I wanted to do something else. I started thinking of ways to keep all the tests the same, while changing the format for all students.

I spoke to Sarah Barnes-Schwerman, our Inclusion Specialist at HTMMA, to brainstorm ideas about what to do. She suggested a two-tiered testing system as a method to build students' confidence and improve testing outcomes. Now that I have tried it myself, I agree that a two-tiered testing approach benefits all the students in the class.

The two-tiered approach is a chaotic means to a positive end. In the first tier, a group test, students are working together. If this is going as planned, prepare yourself for a lot of talking—the more, the better. At first I kept telling students to quiet down but I soon learned to sit back and listen. I overheard students explaining the steps to a problem, asking questions or double-checking someone else's work. That's when I realized that I was the one who needed to be quiet, not them. For the next hour or so, I circulated around the room mediating debates about problems that some students had no clue how to address at the beginning of class. I saw students running from group to group, helping those who needed it most. Most important, the students I was targeting were all very involved and engaged. The students who carried the social weight of an IEP became stronger and walked a bit taller. This approach gave them a forum to have something explained a bit differently than the way I had in the past. It also gave them a chance to shine. If there was something they knew how to do, they wanted to prove it to their peers, and they did.

When it came time to end tier one, the group test, the students were excited. I worried that this method was already a bust because they were so eager to move on. I brought the class back together for a short review of the material and a quick discussion on their thoughts about the first tier of the test. I asked why they were so ready for it to be over. The responses were not at all what I expected. Students raised their hands and one after another said that they were ready for the test and asked if I could give it out already. They didn't hate the first tier; they were eager to take the individual test, which was the second tier. Most of the students said they found the first tier to be very helpful and that they felt well prepared for tier two.

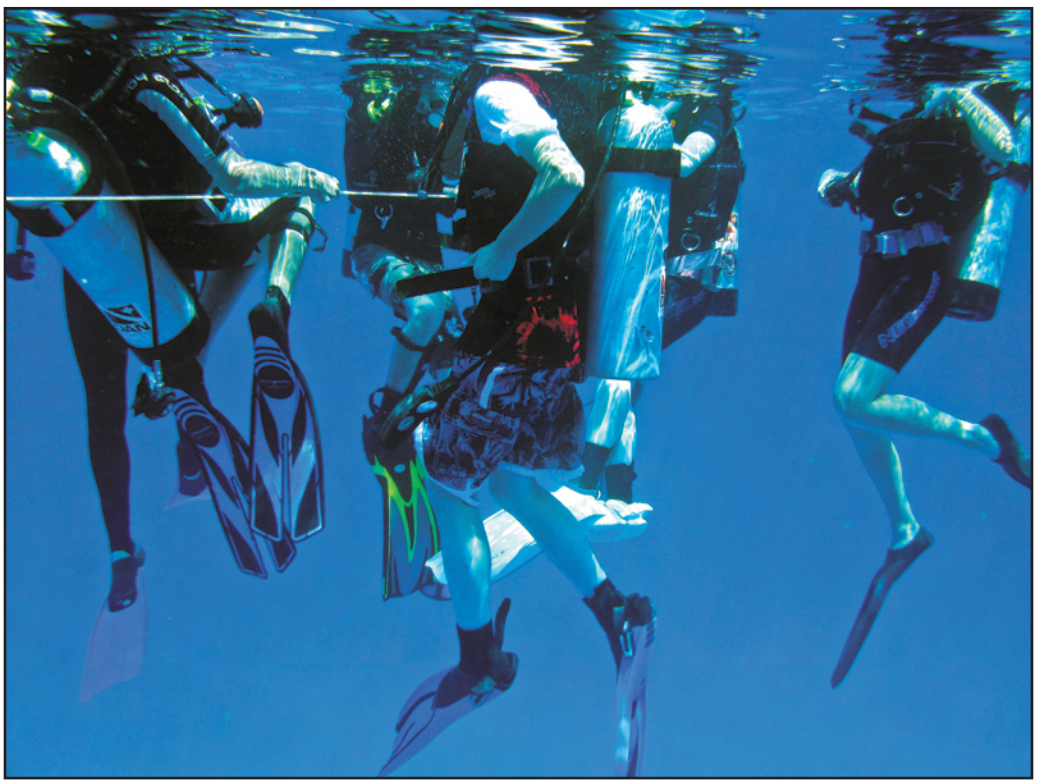
Once I passed out the second test, it was so quiet in the room you could hear the students thinking. The instructional aides and I looked at each other with huge smiles. The same several students who usually doodle or have their heads down were actually working on the test and doing so with conviction!

I know this all sounds like a story from some Teacher Wonderland where everything works out as planned, if not better. But this actually works—I've used two-tiered testing five times now (four math tests and one science test), and each time my students have had great success. The class average on assessments using this method has been higher than on earlier tests this year. Most striking, though, is that students with IEPs are averaging 82% on two-tiered assessments, as opposed to 54% on this year's previous assessments. I have also found an exciting common trend: the students who earn a D or an F do so, not because of a lack of understanding, but because of careless mistakes. These students can follow the steps from start to finish, but careless mistakes (e.g., adding instead of subtracting, poor handwriting, adding a negative sign for no reason) are pulling them down. They understand the concepts and just need help on simple arithmetic, and that is a simple fix.

Since administering a two-tiered testing system, I have been hearing very different comments from students about testing:

"Is this grade real?"
"Can we do a group test again?"
"I loved helping other people!"
"No offense, but they taught it better than you Mr. S."
"This is the best I've ever done on a test by myself."

The last statement was the one that made me realize that this is really working. The student who said this has an IEP. His excitement about his own work showed me that while this method of assessment benefits many students, it may be particularly meaningful for those who need to build their confidence the most. I am confident that it will continue to be a reliable assessment tool to ensure equity and success for all of my students.



The shark's perspective, photographed by Randy Scherer.

Diving in Belize

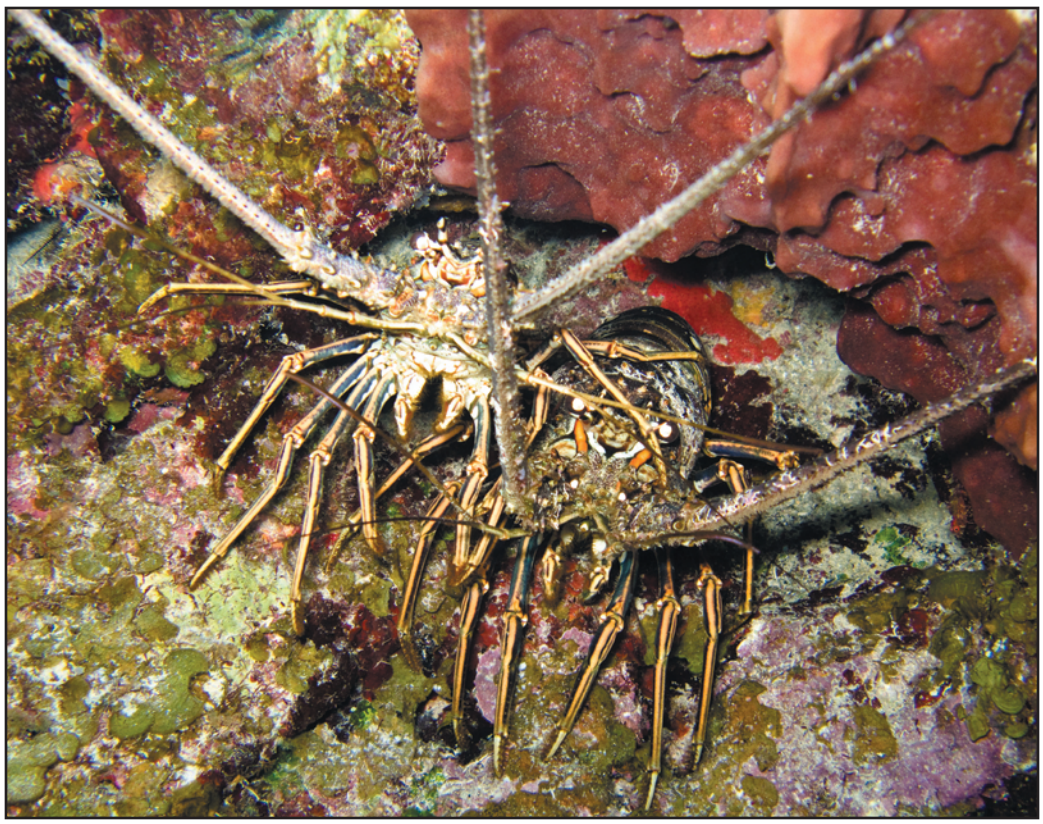
Randy Scherer and Students
High Tech High Media Arts

When I tell people that I took a group of students to do underwater photography in Belize, the first question is often, 'Did anyone get eaten by a shark?' The funny part is that the questioner is typically only half joking—they really want to know if everyone survived.

Establishing a SCUBA program and going on our trip to Belize this March has been one of the highlights of my teaching career. Over the past school year, I have worked with a local dive agency to certify two groups of students as Open Water divers, which allows them to dive recreationally around the world.

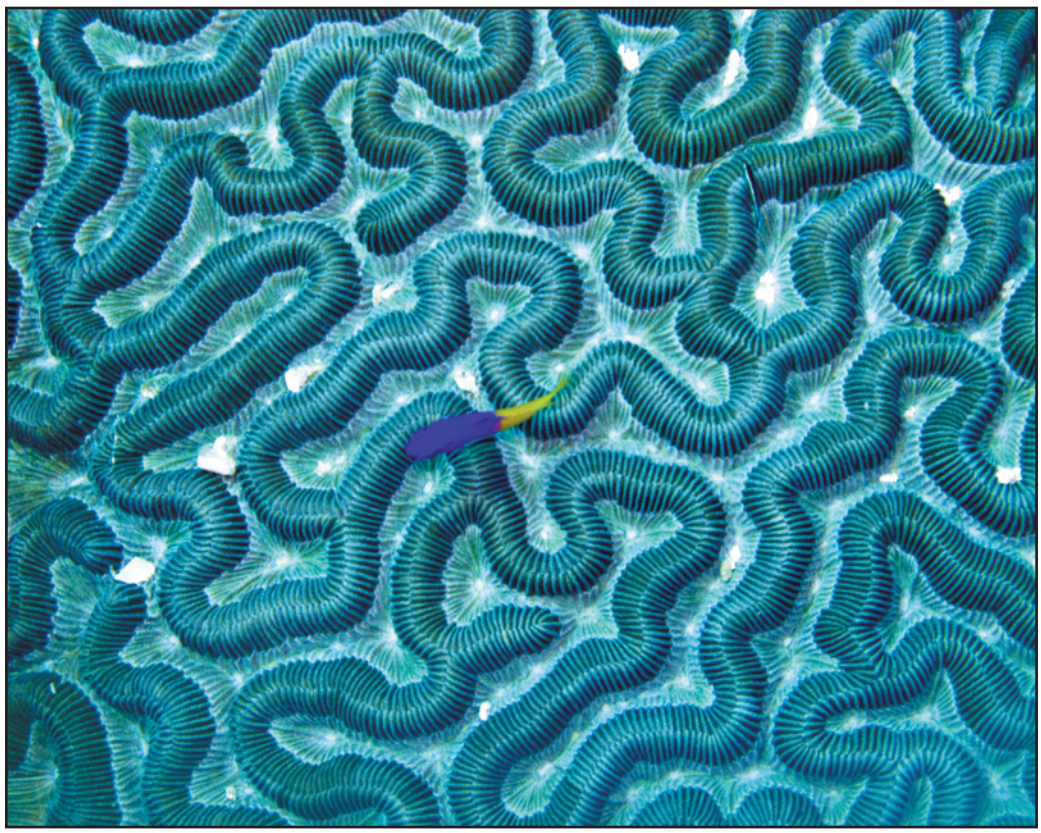
My students' and my interest in underwater photography and diving led us to investigate species identification, marine ecosystems, maritime law, gas exchange laws, nutrition and personal fitness, and underwater photography techniques involving color and lighting. And of course, we needed to raise significant funds for the trip, which involved letter writing, grant writing, community service, and detailed record keeping with digital spreadsheets. Yet this list of 'topics covered' captures only a fragment of the experience. The learning became real when students took their first breath underwater and came face to face with a sea turtle, or slowed down to discover tiny creatures in the coral. The photographs here—taken by HTHMA students and me—are the result of these moments.

Queen Angelfish, photographed by senior Ahlynna Buenrostro. “During the whole dive I was so excited to get the camera. I felt like a little investigator—a detective. I was thinking ‘I have to take it!’”

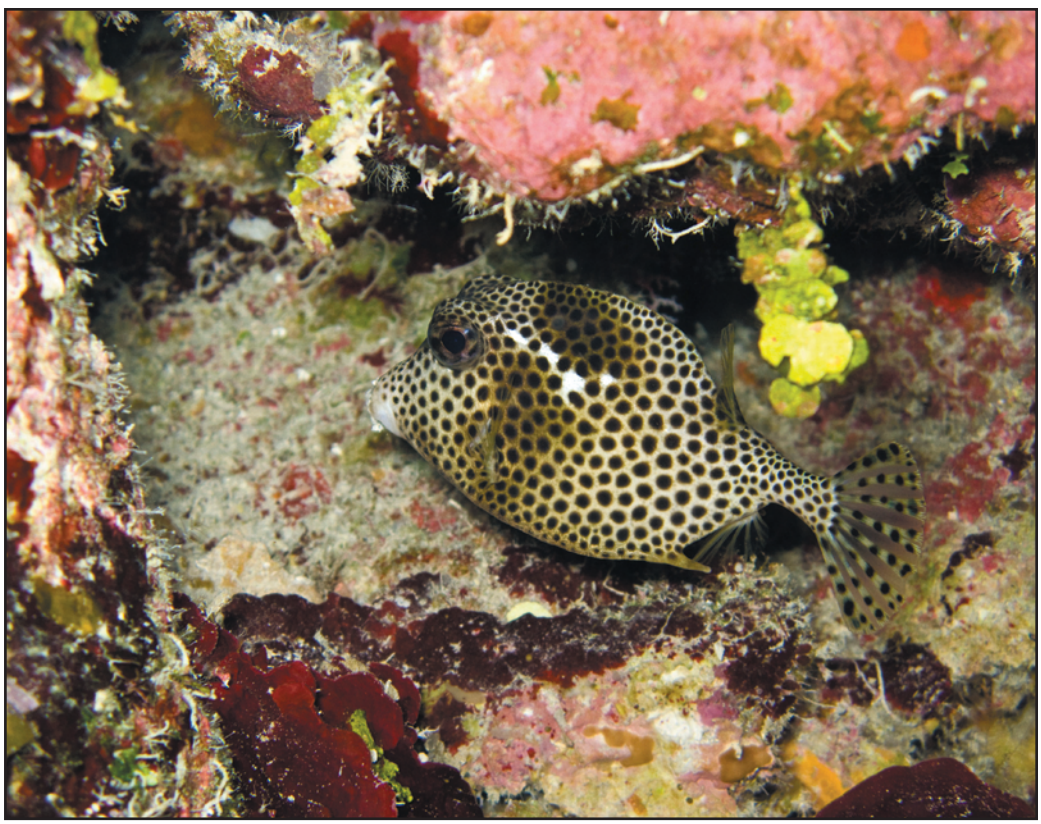


Spiny Lobsters, photographed by senior Jessica Vazquez. “At first I couldn’t do it because it was too much—I was thinking too much and there were too many things distracting me. But I slowed down and could get up close and hover and use my bouyancy [to take this picture].”

Brain Coral, photographed by senior Caitlin Macdonald. “I liked swimming over the coral. If you look inside you see really small animals that if you skim over you might miss.”

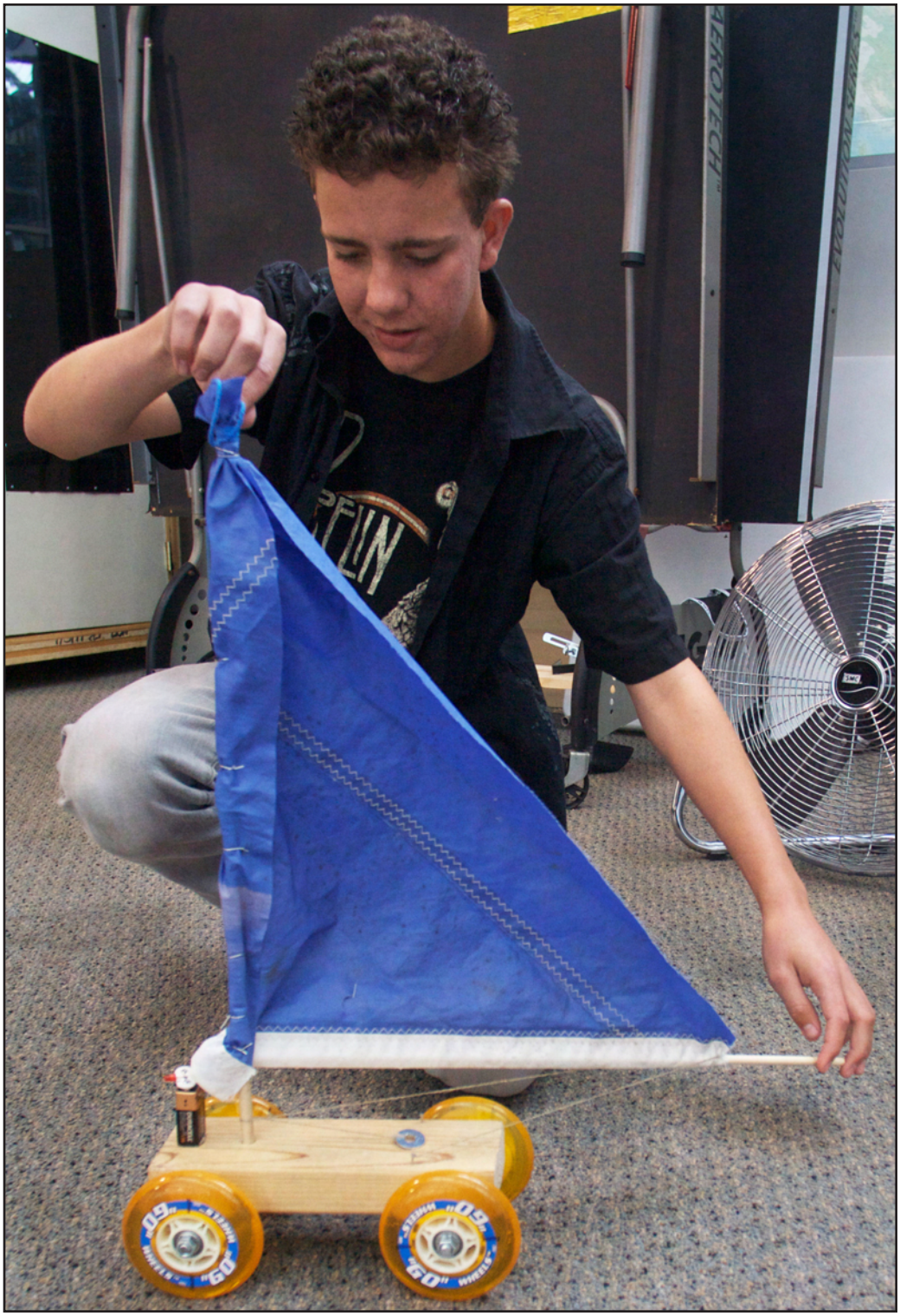


Fairy Basellet, Neon Goby and Brain Coral, photographed by sophomore Nic Nash. “I liked the feeling of freedom and euphoria of seeing the beautiful life underwater. I liked taking pictures of new things underwater—things that are different from what you see everyday. I’m excited—possibly a new career path may have opened up for me.”



Trunkfish, photographed by junior Alec Troast. Troast loves diving because "it's right next to us and all around us and it's totally different than the world above water."

Senior Joey Proctor. “I got my advanced certification in Belize and I’m using that to get my rescue certification this summer. I’m hoping to get a job at a dive shop while I go to college.”



Project: Sail Cars

Abandon Ship!

Aaron Commerson
High Tech High

As is common in life, disasters teach lessons. I learned a great deal from the disaster that was our boat project last year. My teaching partner and I intended to integrate our math, physics, and humanities curricula into an extensive semester-long Boat Project, with students answering the essential question: How did ancient civilizations influence one another? Selecting civilizations that traveled by boat, our main focus in science was the physics behind how those boats worked. We incorporated several scaffolding activities toward building miniature sailboats, including taking sailing lessons and developing and revising prototypes of our work. It turns out that building boats was simply a bad idea.

The big reason that the project failed was small holes. One big flaw in my plan caused a flood of smaller problems. I thought we would be able to use plywood, squared-off Popsicle sticks, a little caulk, and some paint and polyurethane to build waterproof hulls for our sailboats. I was wrong. The students were not as careful as I had hoped when building the frames, leaving gaps that were much too large to fix with caulk alone.

This major design flaw caused several problems. First, the repairs and delays increased the cost of the project. Second, and possibly more important, students got the sense that repairing flawed designs after construction would still work, which is not a habit that I want to impart to them. Third, the time required to fix the boats made us miss our

scheduled date for testing them at the community pool.

Despite all this, I was not willing to give up. I extended the boat project into the second semester, but soon realized that the students were not learning enough to justify the amount of time we were spending on one topic. Moreover, the students themselves were starting to lose interest.

Finally, the big day arrived and we were ready to test the boats. After two hours in the pool, we noticed boats taking on water through near-invisible cracks in the hull. I had to cut the testing short, and by mid-day only a few boats were salvageable after water had leaked in and damaged the hulls.

One of the things that I learned is that it is very difficult to make objects waterproof. This is a lesson I will not soon forget. This year my new teaching partner and I are going to try the project again with one major change. There will be no boats this year, and therefore, no need to build waterproof hulls. Instead, each student will build two drafts of a sail car that will move into the wind, which will allow us to work with many of the same physics concepts.

Personally, I'll never do a project that involves water-somewhat-proofing again! I have shared this story with many colleagues and have heard many stories of catastrophe in return. But as I mentioned at the beginning, disasters teach us lessons, and at least we took the risk. We hope that the changes we have made will keep this year's Boat Project on schedule, under budget, and authentic for students. We believe the project is worth another try and, with only mild trepidation, we are excited to roll out the new design.

Transforming Schools One Question at a Time

Stacey Callier
HTH Graduate School of Education

On the first day of my Action Research course, I always ask my students—all educators—to write on the following prompts: What do you think of when you think of research? What are your experiences with research?

Many of them conjure up images of science labs with hypotheses to test, stacks of books and printed articles to read, and lonely hours hunched over a computer. Those with a humanities or social science background usually describe research as a process of collecting and summarizing the ideas of others, in order to build support for an argument or a recommendation. Those with a background in the physical sciences often describe a process of forming hypotheses, testing those hypotheses, and describing what is found in "objective" terms that require the researcher to remove him/herself from the equation, except as a possible source of error.[1] In either case, most describe research as an "isolating" process, something they have "labored through," written up, and turned in to a professor or placed on a shelf, rarely to be shared or discussed with their peers. In addition, most describe research as a process that concludes when the data or evidence has been collected and analyzed, the conclusions stated, and the implications and next steps reported. Researchers' responsibilities seemingly end here; it is the responsibility of others to implement researchers' recommendations. In short, it is the work of practitioners, those who work in the contexts being studied, to take action and to effect change.

It is not surprising, then, that for many teachers the concept of "action research" can seem like an oxymoron. Indeed, educators express excitement and relief upon learning what action research is—that it engages educators as researchers and scholars, that it is rooted in their daily wonderings and practical concerns about teaching and learning, and that it can be a powerful tool for transforming schools and schooling.

Action Research In Schools

In contrast to more traditional forms of research that tend to emphasize the development of theory over practical application, action research is a systematic inquiry conducted for the purpose of not just understanding, but improving, organizations and their practices. Moreover, action research is designed and conducted by "insiders" who analyze the data to improve their own practice and the systems in which they work. Teacher action research—which usually involves on-going cycles of inquiry, action, and reflection (see Fig. 1)—has been described as "a natural extension of good teaching" (Hubbard and Power, 1999, p. 3), a tool for improving schooling for students and their families (Noffke & Stevenson, 1995), a venue for professionalizing teaching by promoting a teacher-generated knowledge base (Grossman, 2003), and a vehicle for critiquing, challenging, and ultimately altering elements of schooling that perpetuate inequities (Kincheloe, 1991).

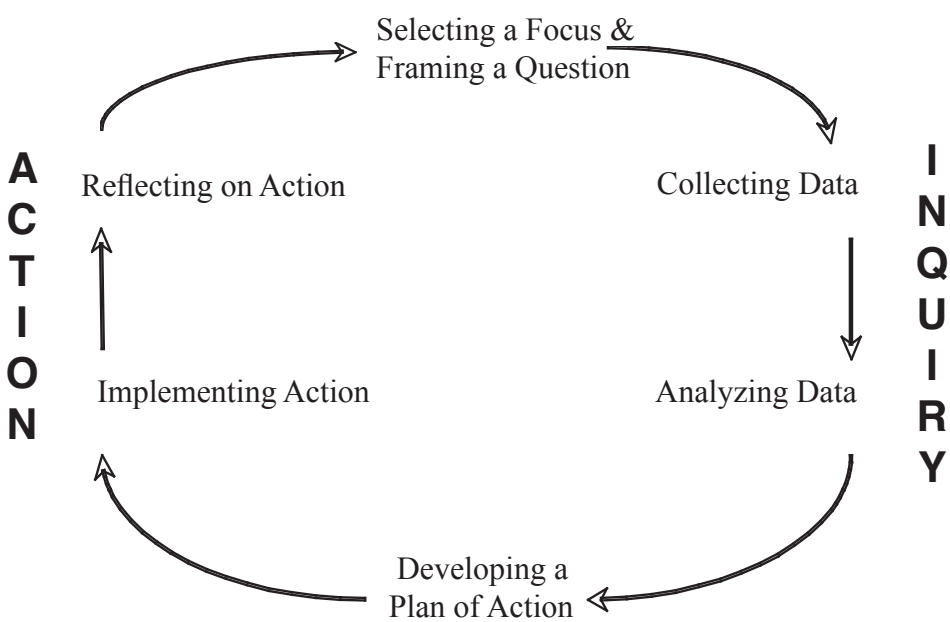


Fig. 1[2]: Action research proceeds through cycles of inquiry whereby educators identify a problem/question relevant to their practice, collect and analyze relevant data, use that analysis to guide actions taken, and reflect on that action to inform future cycles.

While teacher action research has been around for decades, it has gained momentum in recent years as educational reforms have increasingly taken the form of external mandates, positioning teachers as implementers rather than designers of change efforts and curricula. In their review of teacher research since the 1980s, Cochran-Smith & Lytle note, "the intellectual and educational projects that fueled the current U.S. teacher researcher movement had in common a critique—either implicit or explicit—of prevailing concepts of the teacher as technician, consumer, receiver, transmitter, and implementer of other people's knowledge" (1999, p. 16).

The experts and policymakers who develop and mandate reforms are not the only ones implicated in this critique; the emergence of teacher research also served as a challenge to the authority of universities as the exclusive gatekeepers and contributors to the knowledge base of teaching. The sentiments expressed by Berthoff (1987) and quoted here by Cochran-Smith and Lytle parallel those I hear often from teachers: "teachers do not need more findings from university-based researchers, but more dialogue with other teachers that would generate theories grounded in practice" (1999, p. 15).

At the HTH Graduate School of Education, we have chosen to make action research the backbone of our M.Ed. programs precisely because it challenges the distinctions between theory and practice, between knower and doer, that are perpetuated by many universities and Schools of Education.[3] We believe that the practice of teaching is inherently laden with theory, and that useful theory develops from practice. We also believe that teacher researchers, as insiders, are in a unique and powerful position, not only to contribute to the knowledge base of teaching, but also to use that knowledge to effect change within their classrooms and schools.

The challenge for K-12 schools and for Schools of Education then becomes: How do we support teacher researchers in generating understandings and actions that will lead to improved practice and the positive transformation of schools? This is no small task. Teacher action research is a powerful tool, but if it is used merely to affirm teachers' pre-conceived notions and assumptions, it may perpetuate inequities and sustain the status quo. Moreover, if research questions do not emerge from teachers' practice and their professional concerns, the research is likely to feel contrived and to have little impact on teachers' learning or decision-making. If we want teacher action research to be transformative, we must structure it in ways that promote teachers' ownership of their learning and that facilitate teacher reflection and conversation. Below, I briefly discuss a few ways we at the HTH GSE are striving to do just that, by putting forth a new model of schooling—one that nurtures both students and adults as learners.

Action Research and Reflective Practice

In *Experience and Education* (1938), Dewey argued that in order for reflection to be

educative—that is, to facilitate future learning and decision-making—it must be rooted in experience. This is true for youth and adults. Too often in schools, students and teachers are asked to reflect on situations and issues disconnected from their daily lives, to engage with abstractions rather than their own experience. Furthermore, schools often treat reflection as a passive process, a mere "mulling over" (Rodgers, 2002). Students and teachers are asked to reflect on situations, to think about what they learned and what they would do differently, and even to write their thoughts and next steps down. However, they are rarely asked to share their reflections with their peers or to apply their reflections in the creation of something new. Reflection is treated as something you do when the learning is done, not as something that is a continual and integral part of the learning itself.

This view of reflection stands in sharp contrast to the process Dewey (1933) describes as active, rigorous, disciplined, grounded in data, and by necessity, involving action. In light of critiques that teaching is more art than science,[4] it is interesting to note that Dewey's phases of reflection[5] (1933) closely parallel those of the scientific method and of action research: reflection begins with an experience and the interpretation of that experience; questions, as well as possible explanations and hypotheses, arise from the experience; and finally, hypotheses are tested, a new experience ensues, and the process begins again.

For teachers, the experience that triggers reflection may be a lesson gone wrong, an interaction or outcome they find puzzling, a student they don't quite understand, or a problem they see in their classroom or school environment—in short, a "wondering they wish to pursue" (Hubbard and Power, 1999). Such wonderings, generated from their own practice, become the basis for teachers' research questions. Teachers in our M.Ed. program are pursuing questions like: How do students experience "choice" in my classroom? How do students experience open-ended math problems? How do students feel about working in mixed and single gender groups? How do teachers experience their first year in HTH schools? What structures do HTH teachers use to help students know what is expected of them in class?

Each of these questions involves collecting, analyzing, and reflecting on data from various sources to develop a richer understanding of how we, as educators, can improve our practice and better meet the needs of students and colleagues. Educators make decisions everyday, but we rarely take the time to think about why we make the decisions we do, what evidence we use to support our decisions, and who benefits (and who does not) from those decisions. Action research, like reflection in Dewey's sense of the word, brings these questions to the foreground and in so doing, reveals multiple perspectives, generates new questions, and promotes informed action and continual learning.

Action Research and a Culture of Conversation

In my work with teachers, I have witnessed how the on-going inquiry and dialogue that

occurs in the context of teacher action research not only revitalizes individual teachers' practices, but also serves as a catalyst for collaboration, teacher leadership, and school-wide reform.[6] However, these processes do not happen on their own, particularly in schools characterized by a culture of isolation, where teachers are rarely provided the time or space to learn from one another. Conversation, like teacher research, needs to be nurtured in order to flourish. As Fullan (2001) notes, changing schools and the culture of schooling requires more than policies and standards; it requires opportunities for teachers to learn new ways of working together.

In our HTH K-12 schools and in the HTH Graduate School of Education, we intentionally provide structures and set norms to facilitate conversations between colleagues. Our K-12 teachers design curricula and teach in teams, participate in study groups on topics of their choosing, and meet for one hour each day before students arrive to workshop dilemmas and projects, discuss teaching practices, and reflect on student work. In the HTH GSE, teachers bring the questions they are most curious about into our graduate classroom. These questions drive both the conversations and the curriculum. Teachers learn about research methods and design not only by reading about these topics, but by designing their own studies, developing interview questions and surveys, collecting and analyzing various types of data, and presenting their work to colleagues. At every step in this process, teachers are sharing their work and ideas, reflecting on the connections between their research and their practice, and serving as critical friends who challenge one another to be better researchers and better teachers.

As teachers engage in action research with the support of the schools in which they work, a new culture begins to emerge—one of collaboration, where teaching is a public practice and a shared responsibility, where teachers are leaders in efforts to improve teaching and schooling. We have all heard the following in various contexts: real, sustainable change comes from within. If we want educational research that not only informs practice, but transforms schooling, then we need to engage those within schools in meaningful research.[7]

A New Model: Graduate Schools of Education within K-12 Communities

> "Teachers of today and tomorrow need to do much more learning on the job, or in parallel to it—where they can constantly test out, refine, and get feedback on improvements they make. They need access to other colleagues in order to learn from them. Schools are poorly designed for integrating learning and teaching on the job. The teaching profession must become a better learning profession—not just incidentally, at teachers' own individual initiatives, but also in the very way the job is designed." (Fullan, 2001, p. 266)

What would schools—both K-12 and Graduate Schools of Education—look like if they

were designed to further adult learning on the job? We at HTH believe they would look much like our nation's top research hospitals, where adult learning is situated within a clinical site. In such institutions, adults are practitioners and researchers, healers and contributors to the profession's knowledge base. The distinction between practice and theory is blurred; each informs the other and each is better as a result.

This is why we have chosen to establish a Graduate School of Education within our K-12 schools, where adults can learn from students and from one another, and where teacher research is not on the margins of individual teachers' practice, but central to the work we do together as educators. Through this work, we hope to improve our schools, refine theories of teaching and learning, and develop standards for rigorous research that reflect our ultimate goal of becoming, as Hubbard and Power (1999) have said, "more complete teachers." We are excited by the prospect of pioneering this new type of institution and of transforming schooling for adults and students, one question at a time.

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Notes

i These ideas about research reflect the conventions of the different disciplines in which students are trained, as well as students' experiences learning and working within those disciplines in schools and in worlds of work.

ii This figure is an adaptation of a diagram originally produced by Paul Gorski and Barbara Swanson, wonderful colleagues whom I was fortunate to work with in Hamline University's M.Ed. program in St. Paul, Minnesota.

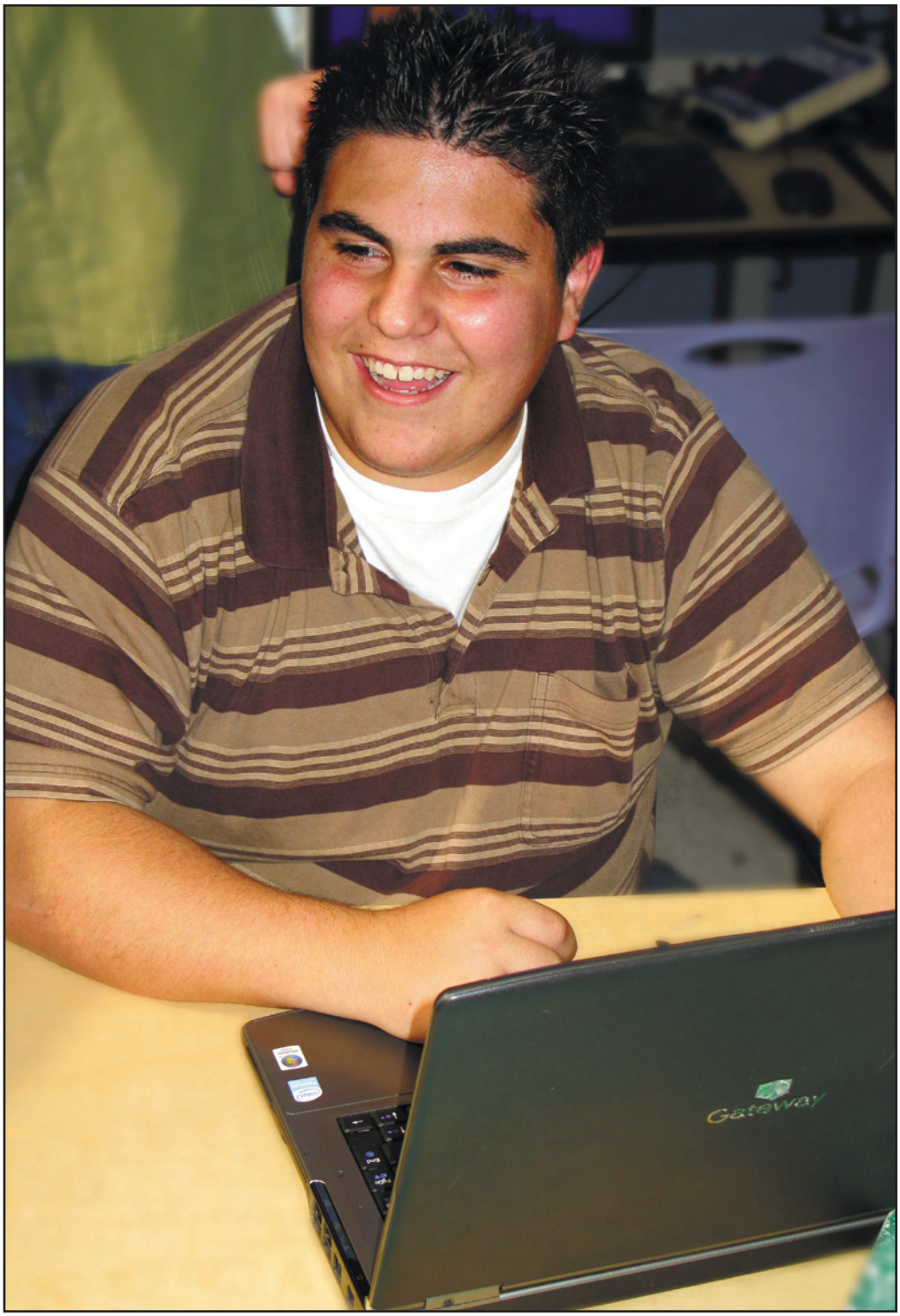
iii We can see this distinction at work in that universities are credited with providing theory, while K-12 schools are charged with integrating those theories into their practice. However, it also appears within many Schools of Education, where there are often distinctions between tenure-track faculty, who are expected to conduct research and generate theories about schooling, and "practical" faculty whose primary responsibility is to train and supervise developing teachers. Indeed, the expansion of teacher research has led to what some are calling a "paradigm war" between the "formal" research promoted by universities and the practitioner-based or "practical" research practiced in schools and in some teacher education programs (Anderson & Herr, 1999).

iv Whether this is a legitimate critique of teaching is beyond the scope of this piece. However, I will note that at HTH we believe that good teaching is both art and science, and that the distinction between the two—like most distinctions—is not useful and in many ways, hinders innovative thinking and practice.

v In *How We Think* (1933), Dewey describes six phases of reflection: 1) an experience, 2) spontaneous interpretation of the experience, 3) naming the problem(s) or the question(s) that arises out of the experience, 4) generating possible explanations for the problems or questions posed, 5) ramifying the explanations into full-blown hypotheses, and 6) experimenting or testing the selected hypothesis.

vi See Caillier et. al., 2005 for further discussion.

vii Students can also play a powerful role in transforming schools through action research as research participants, as partners with teachers, and by conducting their own research studies of their schools and communities. Indeed, Fullan (2001) refers to students as one of the most "vastly underutilized resources in school reform efforts." See Rubin & Jones (2007) for a review of student action research in schools and communities and its many benefits.



A High Tech High student ventures into the blogosphere.

Blogging to Learn

Spencer Pforsich
High Tech High

In spring 2007, when I first used blogs with my students, it felt practically like an accident. Before that semester, a blog in my mind was the cyber-territory of those much more internet savvy than myself. It had never occurred to me that it could be used as a tool for reflecting on academic research or a medium for peer critique.

I first used blogs as a way for students to document their progress through a highly student-directed project called "The Plague of Circumstance"—an investigation of how some countries and cultures are more susceptible to disease exposure than others as a result of historical, political or economic factors. Because this project was so individualized, my teaching partner Janel Holcomb and I decided that the blogs would be a good way for us to accomplish two things: first, to allow students to become assets in each other's research by requiring them to list and annotate all their sources and share them with their peers; and second, to allow us as teachers to observe the direction and progress of each student's studies. One student put it this way in her post "The Truths That All Teachers Know" (http://diseaseproject.blogspot.com/):

> So, this blog idea is both ingenious and evil. As I understand it, the idea is to make sure that students are actually, you know, doing their research. Generally the idea is that the teacher pretends that the students are taking the entire time given to complete the assignment, even though everyone knows that the

> assignment will get started maybe around 10:00 the night before it's due.
>
> Of course, I myself am not guilty of this....In fact, I am so responsible that I'm posting on the weekend after the blog was assigned (this is only because I saw that other 'responsible' students like John and Becky had posted on their blogs and I wanted to seem as awesome as them).
>
> So Truth #1 is that students procrastinate. Truth #2 is that most students use Wikipedia, despite its bad rep for unreliable information. So I've decided that in the spirit of honesty I will first post the information that is found on Wikipedia. Now, have no fear teachers, I will not rely on this information. I will merely use it as a starting point...

After reading this and other similar sentiments expressed on students' blogs, Janel and I knew that we had hit on something. Although students were quick to recognize our original focus of accountability, their writing also hinted at the potential for a sort of online learning community that we hadn't anticipated.

A Tool for Students *and* Teachers

The thoughts we read on the students' blogs revealed an important development: they were not only *reading*, but were also *responding* to, each other's blogs. That meant that students could learn from each other by looking to their peers' blogs for possible research sources and by initiating a dialogue about those sources. A student might post a small annotation about a website he had found, and another student studying a similar topic could use this information to locate new sources, focus his or her research, and contribute to the evolving dialogue. Mejias describes this process as *distributed research*—whereby "knowledge is collectively constructed and shared" (2006, p.1). In this way, the blog is a tool not only for recording what students learn, but also for students to share newfound information with their peers and to construct knowledge together.

From a teacher's perspective, this kind of student-to-student modeling was an exciting process to witness during those early stages of what I still viewed as an experiment. It wasn't until much later—about a year after first using blogs in my class—that I realized the parallel that might exist for teachers to follow the students' model. Teachers everywhere already understand the value of learning from other teachers; it happens all the time at conferences, in education journals, and in school department meetings. However, the blog's immense potential as a forum for ongoing, far-reaching dialogue and reflection is still, to many of us, uncharted territory. In my own blog about teaching, called "School(ing): Reflections of a Teacher and a Learner" (http://spencerislearning.blogspot.com), I explained it this way:

> Much as a Captain's Log is written to keep a record of the semi-private

> experiences of a sailor traveling vast oceans, with the knowledge that the only way it will ever be read is if he makes it home safely, a web-log can be an intriguing forum—both private and public; possibly never read and possibly read only by a very selective audience; and charged with the potential for an occasional fantastic discovery afloat in a mundane, featureless seascape.

This passage brings to mind an issue that also comes up in the student's blog above: *audience*. In her writing, she acknowledges the explicit audience of her two teachers; however, in referencing the work of her peers, she implies an understanding that every other student in her class might also be in her audience. In my own writing, I explore the question of audience more broadly: to take the analogy further, a Captain's Log amidst the debris of a sunken ship might never be unearthed, and yet the log of a successful mission might find its way into the hands of inspired young sailors with their sights set on similar accomplishments. My blog can serve as a tool for my own learning, to reflect on and investigate questions in my own practice; it can also, I hope, be a tool for teaching other practitioners about strategies and resources that have worked for me.

Drawing Out Unheard Voices

Another element that arose through my in-class experimentation with blogs was the increased confidence exhibited by my shy students regarding their work. As technology is increasingly integrated into practically every aspect of our lives, it's clear that there are some students who are more comfortable interacting with one another online than they are doing so in person - an observation that is both useful and frightening (the implications for the future of society are staggering, but far beyond the scope of this piece). For those students, a blog is liberating for its publicness yet privacy, extroversion yet anonymity. They can have the confidence they are afraid to exhibit in person, and they can say what they think with the safety of knowing that if it comes out wrong there's always an "undo."

Again, we can draw the parallel to teaching here. To some teachers, the idea of telling people about the grim details of what goes on in our classrooms might be a terrifying prospect; for many of us, the concept of actually *publishing* information of that kind might feel a bit like airing our dirty laundry. The traditional conceptualization of teaching as a *private* practice, where teachers work in isolation from one another (Nespor 1997), comes into question when we think about publicizing what we do.

However, the safety and insulation that a blog provides might be a remedy for such reclusive attitudes about sharing our work. From observing my students' successes, I learned that I, too, could use this forum to edit out typos and careless words, to look up supporting evidence from better-informed authorities, and (above all) to hit "undo" if at the last second I lost my nerve. This liberating discovery, mined from the blogs of my decidedly more tech-savvy teenagers, led me to brave the terror of exposing my work to the world. In this way,

blogs hold us to a standard higher than ourselves by encouraging collaboration between teachers, but without the tensions that can sometimes result from face-to-face collegial feedback (see Johnson & Donaldson, 2007 for further discussion of these tensions).

Fostering Student Success

Because the blogs were essentially an experiment for me in those first months of use, the students and I had begun posting blindly, with only the idea that research sources should be cited and annotated as one might do while amassing a traditional bibliography. There had been no formal rubric and very few explicit guidelines. At first, of course, that meant that the students' posts were hit-or-miss. One way that I further developed the effectiveness of the blogs was to pick out exemplary posts to share with the class. We would read the posts together and tease out what elements made them successful, keeping a list as we went of all the things they could replicate later. This method of modeling and analyzing excellent work is not only applicable to blogs; Berger (2003) suggests this practice for almost any kind of work. One particularly positive element of this process was that we were able to look at and celebrate the work of students who typically struggled in more traditional research and writing tasks, such as this post from one student's blog (recorded as posted):

> http://www.dhpe.org/infect/rift.html—This is the URL for my topic Rift Valey Fever. In this article it was giving facts and a clear understanding about…Rift Valley Fever like , what it is, how you can get it, where it orginated from, the treatments for getting it, and the symptoms. One part of this article where I got confused was when the article started of by saying that rift valley fever causes viral disease. Then later in the article it said that rift valley fever the diease is caused by rift valley fever the virus. I didn't understand which one my group and I were studing and couldn't get a clear understanding of which one was the right one until I went to Janel for help, and she made it clear that a viral disease and a virus were the same thing, which means that rift valley fever is a virus that causes viral disease.

The honest inquiry and research skills evident in this post (and elsewhere in his blog) were exciting to witness, as they demonstrated deeper critical and analytical skills in this student than he usually revealed in the classroom. The blog form seemed to give students who often struggled in school a voice and an equal opportunity for success. Using their work as a model for their peers helped them to feel valued in our classroom community.

The Future of Blogs in My Classroom

Since doing the "Plague of Circumstance" project, I have continued to use blogs in a variety of ways—as project logs, as creative writing journals, and as news reporting, to name a few. However, one benefit of blogs has so far eluded my students and me: their

ability to attract a potentially unlimited, global audience. The kinds of tasks for which my students have used blogs in the past are not the type that would interest someone outside the context of our class, nor are the students framing their writing in a way that invites outsiders into that context. In order to unlock our blogs' wider appeal I will need to revise my thinking about the kind of writing students might include. Similarly, this thinking will need to include more consideration of how teachers might use their own blogs to reach a broader community (see Ganley, 2006 for a discussion of this topic). For example, teachers' blogs might be used for showcasing student work, drawing parents and families into investigating what their children are learning, or networking with other educators about helpful strategies and ideas for teaching.

One way I've already begun thinking about helping students grow in their understanding of a blog's potential is to use examples of professional blogs with large readerships—the kind that, these days, have the power to make or break box office sales, celebrity charity causes, or even political campaigns (see *Daily Kos: State of the Nation* or *Instapundit.com*, each garnering approximately 300,000 subscribers). If students see blogging as more than a homework assignment, it will help them to find value in the effort required to do it well.

Another, more humble way in which I'm trying to revise my thinking about blogs is to use my own blogging as a model for my students. Up until recently, I had a blog that I used purely for posting homework assignments or writing prompts (see http://spencerpforsich.blogspot.com). However, as I mentioned above, I now have another blog. It is useful for my students to see that I use this medium for honest, reflective thinking much in the same way that I ask them to do. In my case, that thinking is about issues that relate to my work as a teacher, which is a good corollary to the thinking they document in their blogs about issues related to their work as students. One example comes from a post I did about Adria Steinberg's "Six A's" (Steinberg 1998, pp. 24-25) as they applied to an upcoming project:

> When I look at the project work we've been planning for the coming semester, I see a lot of things we've incorporated into them that [Adria Steinberg's] Six A's suggest doing. For example…I'm planning to incorporate some element of inquiry into the world of gallery and museum curation by having students interview curators about what is valued in the world of contemporary art, with the goal of developing that contact into something that will provide them feedback as they produce their own work ("Adult relationships").
>
> There are some things that we haven't yet incorporated but would like to. For example, she suggests that students should be a part of setting project criteria, rubrics, etc. ("Assessment practices"). This is something that I think about but often neglect to incorporate into my planning…I want to make sure this happens with our next project.

By showing my students the process of developing ideas—such as projects, as seen here—I give them a glimpse into the rationale of my teaching practice. I also allow them to see me falter in working out difficult problems, which lets them know that this is a natural part of work worth doing. If they see that even adults struggle with new ideas, then perhaps their own struggles will feel more like a natural part of the learning process.

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Alternative Routes to Teacher Certification

Jennifer Husbands
HTH Graduate School of Education

Alternative certification. Alternative routes to certification. Alternative teacher education. Nontraditional teacher preparation. Alternate routes to teaching. As the education field has not even settled on a common name or definition for this phenomenon, it is difficult to characterize what exactly it is, who offers it, and what its outcomes are for teacher licensure, quality, and retention, not to mention student achievement.

Yet despite the diversity in terms, program designs, and outcomes, researchers and policy organizations have attempted to define and study alternative routes to teacher certification since at least the mid-1980's. In this article, I briefly describe the evolution of alternate route programs and place the High Tech High Teacher Intern Program in this context. Throughout, I use the term "alternative route" program to refer to programs that lead to a state-recognized certification document, but differ from a traditional, university-based student-teaching approach to teacher preparation.

History and Growth of Alternate Routes

California, New Jersey, Texas and Connecticut were pioneers in the development of alternate route programs, partly in reaction to A Nation at Risk (NCEE, 1983), which recommended bringing recent graduates, retired scientists and others with subject matter

High Tech High teachers working towards their credential in the intern program.

expertise into the teaching ranks. The California Commission on Teacher Credentialing (CCTC) administered the state's first district-based Intern program, called the Teacher Trainee Program, in the Los Angeles Unified School District in 1984. In 1985, New Jersey began a Provisional Teacher Program to attract liberal arts graduates into elementary and secondary teaching. Houston Independent School District launched Texas's first school district-based alternate route program in 1985 (Feistritzer & Haar, 2008; Roach & Cohen, 2002). Connecticut soon followed suit by establishing an alternate route program in 1986.

The early 1990's witnessed a significant growth in the number of states offering alternative route programs, in response to two main forces: first, the expansion of standards for both student learning and teacher quality and second, real and projected teacher shortages, particularly in areas such as math, science, and special education and in hard-to-staff locales, such as inner cities and rural areas (Roach & Cohen, 2002). In California particularly, the passage of the Class Size Reduction Initiative in 1997 created a sudden and unprecedented need for roughly 18,000 elementary school teachers (McKibbin, 2008), to which intern programs rapidly responded.

Tracking Alternate Routes

One of the first large-scale studies of alternative routes was conducted by Adelman and colleagues in 1986, in which "alternative certification programs" were defined as "those teacher preparation programs that enroll noncertified individuals with at least a bachelor's degree, offering shortcuts, special assistance, or unique curricula leading to eligibility for a standard teaching credential" (quoted in Feistritzer & Haar, 2008, p. 50). This report was one of the first to characterize alternate route program participants as well educated, interested in teaching (and in many cases, having some prior instructional experience), and possessing a wide range of prior work experiences. Adelman and colleagues described alternate route programs as emphasizing field experience and supervision as well as condensed coursework, often taking place in evenings. This report further described the relatively high levels of content knowledge and instructional skills of alternate route teachers as compared to traditionally prepared teachers.

In the early 1990's, the National Center for Education Information (NCEI) produced the first annual report, "Alternative Teacher Certification: A State-by-State Analysis," which described the tremendous diversity in program types, entry requirements, certification policies and time to completion amongst the 31 states offering alternative route programs. This compendium, along with other research from that same era, showed that alternative route programs were as different from each other as they were from the rather varied universe of "traditional" programs. Yet the intense focus on teaching quality from the mid-1990's through the current era has yielded some common characteristics of most extant alternate route programs (Feisitritzer & Haar, 2008, p. 87):

- They are specifically designed to recruit, prepare and license talented individuals who already have at least a bachelor's degree—and often other careers—in fields other than education.
- They require rigorous screening processes, such as tests, interviews, and demonstrated mastery of content.
- They are field based.
- They permit coursework or equivalent experiences in professional education studies to be obtained before and while teaching.
- They require working with mentor teachers and/or other support personnel.
- They demand high performance standards for program completion.

High Tech High's Teacher Intern Program, developed in response to policy changes at the state and federal levels, reflects these characteristics but adds an additional dimension: interns are placed in schools that are rooted in our three design principles: personalization, common intellectual mission, and real world connection, and the program of study is focused on the principles and pedagogy of those schools.

Teacher Credentialing at High Tech High

When the planning and initial hiring for the Gary and Jerri-Ann Jacobs High Tech High was underway, charter school teachers in California did not need to hold a certificate or credential to be eligible for service. That changed in 1999, when a legislative compromise was struck to raise the cap on the number of charter schools but to require that their faculties hold "a teaching credential or other document equivalent to that which a teacher in other public schools would be required to hold." While the statute provides that "charter schools be given flexibility with regard to non-core, non-college preparatory courses," teachers in core or college preparatory courses are held to the credentialing requirement.[1] The No Child Left Behind Act of 2001 placed additional pressure on public schools, including charters, via the certification requirements in the Teacher Quality sections of the bill. NCLB defined a "highly qualified teacher" as one "who holds at least a bachelor's degree, has obtained full State certification (whether though traditional or alternative routes), and has demonstrated knowledge in the core academic subjects he or she teaches" (Title IX, Sec. 9101. http://www.ed.gov/policy/elsec/leg/esea02/pg107.html).

High Tech High found itself in a quandary—how could we continue to hire the teachers we considered best suited to teach in our schools without regard to credentialing status? HTH staff began exploring the possibility of offering an on-site credentialing program using California's alternative route infrastructure—specifically, the precedent of district intern programs, whereby districts can hire uncertified teachers, train them as they work in the classroom, and certify them. After submitting three applications, the last of which responded to California's overhauled standards for teacher preparation called for by Senate

Bill 2042 (Alpert/Mazzoni, 1998), High Tech High became the first charter school entity in California approved to certify its own teachers in August 2004.

The program was modeled in part on the San Diego Unified Teacher Intern program and receives advising through a partnership with the University of San Diego. But what makes the program unique is that it is situated in a project-based work environment that integrates technical and academic education while fostering a sense of community engagement and responsibility. The program provides direct, on-the-job training to recent graduates of post-secondary institutions, those who have taught in non-public school contexts, and individuals in career transition.

Following from state and federal law, High Tech High interns must possess a BA/BS degree (at minimum), demonstrate subject matter competence (through a defined sequence of coursework or by passing an exam aligned to the student content standards for each discipline), and pass a basic skills assessment. More important, candidates must be hired as a full or half-time teacher in a High Tech High school, which means successfully navigating a rigorous hiring process. Essentially, High Tech High evaluates all prospective teacher candidates in the same way without regard to credential status. After submitting a cover letter and resume, selected candidates are invited to High Tech High for a day-long visit, including interviews with staff and students and the teaching of a sample lesson. For the 2007-08 school year, HTH hired 52 teachers, half of whom already held credentials while the other half entered the teacher intern program.

The HTH Teacher Intern Program begins with three weeks of pre-service professional development and instruction, part of which is specific to new teachers and part of which includes returning staff. In the first four days, before returning staff arrive, all new teachers, including interns, create a syllabus, develop a digital portfolio, learn about the HTH student advisory system, devise an integrated project plan for use early in the year, and present that plan to an audience of peers and HTH students. They then join their returning colleagues in site-based preparations for the school year. Once the year begins, interns attend class once weekly in the evenings and roughly one Saturday each quarter. They complete their accelerated coursework in the first 12 months. During the second year of the program they complete a Teaching Performance Assessment, which California now requires of all teachers earning a preliminary credential. Just as we have High Tech High students complete presentations of learning as their gateway from one grade level to the next, HTH Teacher Interns present their learning at the end of their program. In these presentations, they describe their journey to teaching and to High Tech High, share a video clip of themselves teaching and reflect on it, and describe their plans for ongoing development as a professional educator. This presentation takes place before a panel that includes a school director, an experienced teacher, a student, and a community partner (for example, a faculty member from a local university or district intern program).

To date, High Tech High has graduated six interns from the program, a number that will increase dramatically by the end of the 2008-09 school year. While the number may seem small, it is important to note that in 2004-05 (most recent data available), UC San Diego issued 34 single subject credentials and the San Diego Unified District Intern program issued 13.[2] High Tech High is poised to issue roughly 30 credentials in the next two years, of which nearly 60% will be in the areas of math and/or science.

Context and Quality

Alternative Routes to Teaching have attracted both evangelical support and scathing critique. Proponents of alternate routes see them as a way to expand the pool of prospective teachers, particularly qualified candidates who might not otherwise choose the teaching profession. Further, proponents view alternate route programs as a way of breaking the perceived monopoly held by schools of education in the area of teacher preparation (Walsh & Jacobs, 2007), a view underscored by recent reports characterizing traditional teacher education as irrelevant and ineffectual (Levine, 2006). Those who argue against alternative routes point to concerns over inadequate pre-service preparation, lower standards for certification as compared to traditionally-prepared teachers and potential negative impact on student achievement.[3]

In a study of program and participant-level data from seven alternative route programs, researchers from SRI International concluded that while program, personal, and contextual elements all influenced outcomes for participants, "the element with the strongest effect on all measured outcomes…was school context" (Humphrey, Wechsler & Hough, 2008, p.1). At High Tech High we find that both teachers new to the profession and teachers who have taught in more traditional contexts face a steep learning curve in our project-based learning environment. Therefore, we have carefully designed the context into which our teachers are placed – a collaborative, reflective culture that emphasizes learning and growth for all of our educators, not just those new to teaching. All HTH teachers arrive at school an hour before the students each day, to meet and plan in a variety of configurations. All core subject area staff teach in teams of two or three teachers that share the same students. Ultimately, whether teachers are new interns or an experienced teachers transitioning into our schools, we know that they will need support from their teaching partners, colleagues, and school directors among others to be successful. That is why we take an inclusive view of teacher development, situating our credentialing program in a broader context of adult learning in our schools.

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Notes

1 For more information on the credentialing requirements of charter schools visit: http://www.ctc.ca.gov/employers/charter-schools.html

2 For more statistical data on credentialing in California, visit: http://www.ctc.ca.gov/reports/TS_2004_2005.pdf

3 Mixed in with concerns about the quality of teachers prepared by alternate route programs is the overrepresentation of alternate route participants in high-need or hard-to-staff schools and districts. This is a point echoed in critiques of Teach For America. It is important to note, however, that at its inception, Teach for America was not designed as a route to certification; rather, TFA began as a Peace Corps-like recruitment strategy to attract high-achieving undergraduates into hard-to-staff schools for a two-year commitment. Many alternative certification programs began from the same impulse, to attract high quality candidates to these areas and/or to provide training on the job to teachers filling slots that desperately need to be filled. Newer initiatives such as The New Teacher Project and its Teaching Fellows programs respond to critiques of TFA by linking candidates with certification programs and working to raise teacher quality and retention in the profession.

Ron Berger, a master carpenter and master teacher, taught elementary school for 25 years in western Massachusetts. He has worked with Harvard Project Zero and the Carnegie Foundation for the Advancement of Teaching. Ron currently works for Expeditionary Learning Schools, consulting with schools and teachers across the country. He is the author of *An Ethic of Excellence: Building a Culture of Craftsmanship in Schools*. Ron holds an M.Ed. from the Harvard Graduate School of Education.

Stacey Caillier is Director of the HTH GSE Teacher Leadership M.Ed. program. She has collaborated with teachers on action research, mentored practicing teachers, and presented her research at multiple education conferences. She taught high school physics and math at an Oregon school affiliated with the Coalition of Essential Schools and served as a science specialist for a California charter school. Stacey earned a B.S. in physics and English from Willamette University, where she also earned a M.A.T. and teaching credentials in physics and math. She completed her Ph.D. in School Organization and Educational Policy at the University of California, Davis.

Aaron Commerson teaches 9th grade integrated math and physics at High Tech High. He is pursuing his M.Ed. in the HTH GSE Teacher Leadership program, where he is investigating the influence of heterogeneous and homogeneous gender groupings in a project-based classroom. Aaron earned a B.S. in physics from Florida Atlantic University, along with his teaching credential.

Ben Daley is Director of the HTH GSE School Leadership M.Ed. program and the Chief Academic Officer for HTH schools. He works closely with school directors and teachers to provide leadership for hiring, curriculum, and professional development. Previously, Ben taught physics and robotics and served as the Director of High Tech High. Ben graduated from Haverford College with a B.S. in physics and teaching credentials in both physics and math. He earned an M.A. in Science Education from the University of California, Santa Barbara.

Jennifer Husbands is Director of the Credentialing and Induction Programs at High Tech High. Jennifer co-authored *A Review of Selected High School Reform Strategies* for the Aspen Institute and contributed a chapter to *Leadership for Building Instructional Quality: The Story of San Diego's Systemic School Reform* with a team of colleagues led by Linda Darling-Hammond. She has served as a researcher on several school reform projects and as an evaluation specialist for a school-based AmeriCorps program. Jennifer received her B.A. from the University of Virginia and her Ph.D. in Administration and Policy Analysis from the Stanford University School of Education.

Spencer Pforsich teaches 10th grade Humanities at High Tech High. He is pursuing his M.Ed. in the HTH GSE Teacher Leadership program, where he is researching how students

talk about race in and out of the classroom. Spencer holds a credential from the University of San Diego and a B.A. in Literature/Writing from University of California, San Diego.

Rob Riordan is Director of Instructional Support for all HTH schools, a member of the HTH GSE faculty, and one of HTH's founders. He has worked as a teacher, trainer, and program developer for 35 years. As a teacher, Rob developed an award-winning writing center and two high school internship programs, for which he was named National School to Work Practitioner of the Year in 1994. He is co-author, with Adria Steinberg and Kathleen Cushman, of *Schooling for the Real World: The Essential Guide to Rigorous and Relevant Learning*. Rob was a lead researcher and then Director of the New Urban High School Project. He holds an Ed.D. from the Harvard Graduate School of Education and a B.A. from Haverford College.

Jeff Robin is a founding teacher at High Tech High, where he has taught humanities, multimedia production, and art. He currently teaches senior art. As a working artist, Jeff's gift for simple and elegant project design has had an enormous influence on teaching and learning at HTH. He holds an M.F.A. from the California College of Arts and Crafts.

Larry Rosenstock is President of the HTH Graduate School of Education and Chief Executive Officer of High Tech High. He taught carpentry for eleven years in urban high schools before serving as staff attorney at the Harvard Center for Law and Education, where he collaborated on the authorization of the 1990 Perkins Vocational Education and Applied Technology Act. He was Executive Director of the Rindge School for Technical Arts (Cambridge, MA), a lecturer at the Harvard Graduate School of Education, and Director of the New Urban High School Project of the U.S. Department of Education. He came to San Diego in 1997 as President of Price Charities, and was the founding director of High Tech High. Larry earned a B.A. in Psychology from Brandeis University, an M.Ed. in Education Administration from Cambridge College, and a law degree from Boston University School of Law.

Randy Scherer teaches 11th grade Humanities at High Tech High Media Arts and is the Editor of *UnBoxed*. He is pursuing his M.Ed. in the HTH GSE Teacher Leadership program, where he is researching what makes immersion experiences meaningful for students. Prior to joining HTH, Randy was the Production Manager for three national magazines. He received his B.A. in Political Science and Creative Writing from Binghamton University and his teaching credential from the University of San Diego.

Marc Shulman teaches 6th grade integrated math and science at High Tech Middle Media Arts. A student in the HTH GSE Teacher Leadership M.Ed. program, Marc is researching the impact of student input on school community. He holds a B.S. in Elementary Education from the University of Maryland, College Park.

Cards contributed by **Diana Cornejo-Sanchez**, **Angela Guerrero**, **Jeff Robin**, **Lacey Segal**, **Rebecca Smith**, and **Kelly Wilson**.

BE A CONTRIBUTOR

UnBoxed is seeking submissions for future issues from teachers, administrators, students, teacher educators, policymakers, researchers, and other informed observers of education.

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