UnBoxed

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Graduate School of EDUCATION

UnBoxed

A Journal of Adult Learning in Schools

Graduate School of EDUCATION

Special Edition • Summer 2019
Literacy Retrospective

*un*Boxed

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Welcome

The Editors

Welcome to the Summer 2019 issue of UnBoxed.

In this first-ever retrospective issue of the journal, we showcase a range of previously-published articles which tackle the topic of literacy, along with a new interview with an educator who has been deeply influential to High Tech High schools. What does literacy mean in the 21st century? Why does literacy matter for students? How can project-based teachers authentically incorporate literacy practices into their classrooms? These are some of the questions that the articles in this issue tackle. Not coincidentally, these questions are ones which teachers and leaders across High Tech High's fourteen schools have been puzzling over with particular intensity over the past year. There is much still to be learned, but there is also much to celebrate. In reprinting some of the best essays on literacy to appear in UnBoxed since its inception in 2008, we hope to both celebrate and deepen this work.

The pieces which we have selected range widely while also sharing an emphasis on what it means to help students to develop into stronger and more joyful readers, writers, speakers, and listeners. In an original interview, EL Education's Ron Berger reflects on how his thinking about teaching literacy in the context of project-based learning has changed. Kelly Williams writes about how the practice of "doing the project yourself" not only helped her to hone her project design but also to grow as a writer. Bobby Shaddox describes how the practice of "graffiti discussions" helped him learn to draw out the thinking

of reticent students, and Briony Chown unpacks the practice of using checklists to deepen peer critique. Several other pieces describe projects which skillfully incorporated literacy: Randy Scherer writes about projects in which the student publications provide the entry to authentic literacy skill development; Tom Fehrenbacher describes deep collaboration as a way to integrate the humanities with the sciences; student Timoteo Delgado shares how authentic projects helped him rigorously engage with important literacy skills and Juli Ruff reflects on how a safe classroom space welcomed a student with specific needs.

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Read, enjoy, and participate!

—The Editors

Students at High Tech Elementary Chula Vista engage in a peer critique of their writing.

Crafting Beautiful Lessons

Ron Berger
EL Education

In the inaugural issue of UnBoxed, *Rob Riordan and Ben Daley interviewed Ron Berger, veteran elementary school teacher and Chief Academic Officer of EL Education, on his approach to engage students in the creation of "beautiful work" by showing them models, eliciting multiple drafts, and employing classroom critique as an instructional strategy. The interview was titled "Crafting Beautiful Work."*

For our retrospective issue on literacy, Stacey Caillier, Director of the High Tech High Graduate School of Education's Center for Research on Equity and Innovation, talked with Ron about how his thinking about literacy within project-based learning has evolved since he last spoke to Unboxed. *What follows is a transcript of that interview, edited for length and clarity.*

INTERVIEWER

Tell us about how your thinking has shifted about literacy and projects.

RB

I've been in education 43 years, and I've been a project-based learning teacher and advocate all of that time. I've written books on project-based learning, and I was in the classroom myself for 28 years doing

project-based learning. And I think I was a good project based learning teacher.

Skills of reading and writing and speaking and listening were always built into that. But it was before the age of common core standards and state standards, and I never was a person to look closely at standards. Now, in this new world of tightly looking at standards and understanding the science of reading better, at EL Education, we have dozens of literacy specialists, and I've learned so much from them.

When I look back on who I was as a teacher in the classroom, our staff would be incredibly critical of me--as well meaning as I was—and I can see many blind spots I had during that time. I also know why I had those blind spots. But in order to understand that, I'll start with what I prioritized:

Priority 1: Projects contribute to the world.

Number one, that the kids had a project that was going to contribute in some way to the world. It was really important to me that they felt like their work was important and had a real audience, and that it contributed something of value to the world. That always included reading, writing, speaking and listening, but the contribution was first on my mind: "Are they going to create something they're proud of, or perform something they're proud of, or create an action or do something that they're really proud of that will be transformational for their lives?"

Priority 2: Projects build character.

Number two, I wanted the project to build their character. In terms of literacy and character, I wanted to build in places where they had to read hard materials, and speak in front of adults and people who were different from them, and learn the courtesies of crossing different cultures: a lot of literacy skills are embedded in projects that make kids more courageous and more courteous and more respectful. Throughout each project I asked myself "Are the topics in our readings going to help build the kind of people that we want?"

Priority 3: Students learn key content and concepts for themselves through reading.

Number three, I wanted to make sure students understood the scientific concepts or historical concepts or the social issues that we were studying in our projects. There were certain concepts that I thought "I want them to get this right so they really understand what we're

trying to do." So I designed reading and writing tasks that allowed kids to get access to the content without me having to teach it to them directly. That way, I didn't have to lecture the kids, they could gain that knowledge from their own research and crystallize that knowledge through their own writing: it's not me telling them the content, it's them discovering the content and then figuring out ways to reshape that content to inform others.

Number 4: Students learn to read charts and pictures as well as text.

Number four, I wanted to vary it so that there was visual content as well as written content, and students learned how to read diagrams, how to read illustrations, how to read photographs.

I really thought I was good at this stuff, and I thought about it a lot, and for many years I was considered an expert in embedding literacy into projects. Now when I look back, I realize how many gaps I had that I was blind to.

So here are some of those gaps.

Gap 1: Attending to the balance of reading and writing tasks across the year.

I was so driven by the kids developing conceptual understanding of what we were studying, and by them developing character and confidence as scholars and human beings, that I wasn't really thinking at the same time about giving them the right experiences to build their skills as readers and writers, and covering all the different concepts in reading and writing and speaking and listening in a balanced way.

And balance is important in a number of ways. I didn't look over the course of the year to see if I was giving kids reading experiences in all the different kinds of modalities and genres, and levels of complexity. I was so obsessed with what they needed to know for each project that the overview was not something I focused on. It was the same with writing: the writing activities had to fit that particular project, but I didn't ask "Over the course of the year, what are all the different genres of writing that they should be practicing, and did I balance those across the year?" I wouldn't have noticed if they never did procedural writing, or analytical writing, because I was so excited about the fact that they were doing genuine writing for an authentic audience.

Gap 2: Making sure students are learning what they're supposed to be learning at grade level.

When I was teaching we didn't have that clarity of standards we have now, but even so, I didn't take that step deeper to look at "What are all the standards that we should be hitting at this grade level, and am I making sure that I'm actually hitting all those reading, writing, speaking and listening standards in some way, in a balanced way throughout the literacy work we're doing?" So I never had that broad overview, and I wasn't tracking those skills and standards.

Gap 3: Tracking learning through small, frequent assessments.

Also, if I were tracking those specific learning skills and standards closely, which I was not, I would have had to be building in small performance assessments. So I would think "This is the skill I'm trying to have kids do: I'm trying to have them create an evidence-based argument and cite their evidence. What are all the small performance tasks I'm doing along the way to figure out which of my kids are getting it and which aren't, so I can really support those kids who are not?" Because I wasn't doing this, I ended up having to intuitively seek out kids that was worried about, and then near the end of the project, give a lot more support to those kids, because I wasn't doing small assessments along the way.

Gap 4: Monitoring text complexity.

Text complexity was never an issue that I was carefully monitoring. I used a lot of really complex texts with kids because I love challenge. So I often used adult level scientific text or historical texts that kids didn't understand, and I was doing close reads with complex texts decades before it was a popular thing to do. But when I chose the anchor text for our work, whether it was fiction or nonfiction, I didn't even think about text complexity . What I thought about was, "Does it have the right angle on the content?" "Is it a compelling story?" I wanted to find a book that would excite them, and if the text complexity was really a bad choice for us to be dwelling in deeply for four weeks, I wasn't even tracking that. That doesn't matter for the strong readers, because they're doing so much reading on their own so if the text complexity is way below what they need, they're getting a lot of challenge in their own reading. But if there are kids for whom reading is challenging and they're not doing a lot of reading outside of school, and I've chosen two or three books in a row that are not pushing them in text complexity, then it's a big disservice to them.

Gap 5: Breaking down text features.

The other issue is text features: being a good reader is understanding styles of text and text features in fiction and nonfiction work. And I didn't break down for kids the deep understanding of text features, and then make sure that I balanced the text choices I made during the year around those, nor did I balance how to use those in their own writing.

So, I had great passion for teaching and put a lot of heart into it, and kids loved their projects and did a lot of great reading and writing and speaking and listening, and they learned a lot. But many kids might have had gaps in their literacy skills because I wasn't tracking all that stuff. Now, when I see my former students as adults, it's great to see them, and they remember the projects we did 40 years ago, and I feel like I succeeded in so many ways. But I feel that I probably let some of them down because for the ones that were struggling with literacy, I didn't have a balanced approach.

And so now in our coaching work at EL Education, we spend a lot of time helping teachers designing their projects, being really thoughtful about looking at the skills and standards first, thinking deeply about "What are the things we want to really make sure kids experience?" and then planning the project and the project sequence for the year, really making sure that we're hitting all those. And for every text choice we're thinking about text complexity and text features as well as content. So kids are getting the right level of challenge and push and the right level of instruction, and we're keeping that separate from independent reading where kids have choice, or phonics skills if it's little kids. But we're being much more intentional and explicit about attending to literacy skills as part of the project. For me personally, the content and concepts of a project used to be probably 90% of what I cared about, and 10% was the literacy stuff.

But the literacy skills are so important! I probably should have been putting 50% of my attention on selection of tasks, and assessments and texts. I should have been thinking about "How am I building the reading and writing skills?" as much as I was thinking about "How do I make them experts in geology?" I always prioritized the geology concepts, not seeing the geology so much as an opportunity to build their reading, writing, and speaking skills.

INTERVIEWER

Can you describe an ideal version of this in a classroom? I mean, there's no ideal, so maybe that's a bad question...

Yes, I don't think there is an ideal, but I think that in every school, we need to work with kids at the outer edge of their reading ability and writing ability so they're being pushed. And so, finding common texts and writing tasks that are slightly uncomfortable for all kids, so that we can get on their growth edge, is an essential part of pushing them to become better readers, better writers. And grappling with complex text, and complex writing tasks through close reads, and writing that goes through multiple drafts, I think has to be a regular thing, K through 12.

And at the same time, we have to build a culture of love of reading and writing. So there also have to be times in the day when kids get to read and write more for pleasure. For elementary kids, it should pretty much every day: some time for reading where teachers are either conferencing with kids or reading on their own. But there should be this "We love to read" feeling everywhere in the building.

And in middle and high school, we shouldn't give that up. We may not be able to fit it in every day, but we should have a couple times a week at least where kids have a silent reading time where they're allowed to read and they're helped to make good choices and we model the pleasure of reading, just to get more kids to be readers and loving reading. And you need times where kids have flexible writing tasks as well, but I am much less attached to flexible choice writing time for kids being a regular thing. I think kids do need flexible journaling times and writing times and free writes occasionally, but I think constraints around writing don't kill the creativity in kids: having kids write through particular formats and genres that fit the project you're doing still allows for a lot of expression.

To give a particular project example: let's say you're going to send your kids out into the community to interview people, maybe veterans of US wars, or local civil rights heroes, or civic leaders in your community, or new immigrants to America. It's a great project to have kids interview people, but before you send them out to do these interviews, you've got to turn them into journalists. So, there's so much reading to do about journalism, about the craft of interviewing, they need to read interviews with people so they gain an understanding of what a good interview is-- and they need to practice by interviewing each other and writing that up, and interviewing their families and writing that up, and critiquing their interviews. And that can all be done by looking closely at the standards and looking at the skills you want kids to learn, and making sure you have built a sequence that hits all the different things you want to hit, and has assessments built into that along the way.

You may not have a lot of free writing built into your day for a couple months when you're doing that, but I actually wouldn't worry about that. I'm much less worried about free writes happening all the time, than that kids are writing with purpose that they care about.

INTERVIEWER

About a year and a half ago I asked you if there were two literacy practices happening that you wish were happening in all middle and high schools. I remember you mentioned close reads and interactive word walls. Can you say a little bit about those two? Why are they important and what do they look like at their best?

RB

I am super attached to close reading, because it embodies challenge. It's hard for kids but it's intriguing, like a really great math problem, or a really cool puzzle challenge.

For example: You give the class a written piece, you read it aloud for them, and here's what you say:

No one in this class is going to fully understand this page—nobody. And your parents probably wouldn't understand this page. Because it comes from an adult scientific journal and it's about a topic that we're not experts in. So, if you don't understand this page at all when you first look at it and it scares you, that's fine. And don't freak out. In fact, I bet if you look at it closely you'll think, 'I understand a little bit, I know some of these words. . I get some of this.' So, if you understand any bit of this page, you're already winning. Don't think, 'I don't understand every word of it so I'm losing.' Any word you get, you're winning. Any concept you get, you're winning.

So you've got five minutes to look at this page by yourself. Start circling things that you get, start underlining things, use your text coding strategies

Maybe you"ll give them a very formalized text coding protocol that you've used before, with symbols for things you have a question about, things you understand already.. And at the end of that, put them in groups where four kids get together to work on it, to discuss "What did you get out of this part?" "What did you get out of this part?" "Did you get anything?" "Yeah, I got this." "I think I got that. What about this?" And then the group shares out with the class: "We think this part's about this, we recognize this word, we recognize this whole sentence."

And if at the end of 20 minutes the whole class has kind of made sense of this scientific journal article, they feel like, "Oh my God, we understood this thing that adults don't even get. My parents wouldn't even understand this. And we got it. That is so cool." It makes you think, "I'm not scared of hard text anymore because we took it on and we beat it." And when that becomes a regular practice, then kids don't get freaked out by hard text because they think, "Oh, yeah, we do this all the time. I have many entry points. I know where to start with hard text." And they feel kind of important, because they are able to look at professional level text and make sense of it. So, I just think close reads are great. I'd want to do them almost every day and in many different topics.

INTERVIEWER

I love this, because I'm so used to more of a deficit approach to text, like, "Circle the words you don't know, highlight all the questions that you can't quite articulate." But being told "Circle all the things you know" feels very different! And I've also come across close reading described as "Read the text once for x, and then read it again for y, and then read it a third time for z" But you're describing something different. Can you say more about that?

RB

So, there's lots of different close reading strategies. And I think multiple close reads are a common strategy: "read the text first time for this and read it a second time for that." It can be very useful. But the important thing about those strategies is not to follow them blindly, because if you decide "Every time we do a close read we're going to read the text three times," then it's like, "Oh, man, I got enough out of two times!" or maybe we need four times this time. I think you should use your own discretion as a teacher about multiple reads. You should vary your close reading strategies and you should attune them to a particular piece of text and what the kids are getting out of it. But the point of a close read should always be to make sense of the content, and to get metacognitive sense of our reading skills: "How are we making sense of this text?"

INTERVIEWER

And as far as the texts you choose, how do you decide when to have the whole class grapple with a difficult text and when to provide multiple texts at different levels?

RB

I think that you want to have common close reads that push every kid in your classroom, so that every kid feels like, "Wow, we all struggle with this." But it's also fine to differentiate some close reads.I don't think differentiating for small groups is a bad thing, as long as you're also making sure every kid has the challenge and access to the really hard text, which is at grade level or above, or even far above. But every kid being pushed by the same text is a great team-building thing for the class to realize "We're all trying to figure this out together."

Now, the other strategy I'm really excited about is the interactive word wall. The standard "word wall" is just a list of words on the wall and the whole point of it is memorizing vocabulary. And memorized vocabulary sometimes sticks with you, and sometimes evaporates. But interactive word walls are about the relationships and the concepts that are embedded in the words, there's not a "right" answer to them. So you could take all the interesting vocabulary words that you are grappling with in your project and have groups of kids spread those words out on a table and start arranging them in logic models of "This causes this and this is actually a subset of this, and then you get this from this," which inevitably leads to ""No, I was thinking about it this way. Because this is really the large category and then these are all the subcategories of that." Then someone else will say, "But this is actually their primary cause, so I would line up the words like this." And the kids who don't really understand the words well are learning to make sense of those words in context. ." The words to get a whole different level of meaning when you're thinking about how they sit in a logic model.

INTERVIEWER

It's about relationships between words, not just individual words.

RB

Exactly. And it's about the conceptual understanding of whatever it is you're studying: the concepts embedded in that topic come out based on how you arrange the words. And logistically this can be small groups doing it on a table; it can also be a big wall with everything velcroed or magnetized to the wall where kids come up in teams and rearrange it and explain their thinking to the other group and then the next group comes up and rearranges the words. Or it could be something that's permanently up in your classroom and it keeps getting changed all the time as kids come up with new ways of thinking about the words. And you can incorporate arrows and equals signs, and "both ways" arrows,

all those symbols that connect things. It's a terrific process, and you can use it with kindergarteners all the way up to high school kids.

INTERVIEWER

I love that. Now, a colleague of mine came back from your talk yesterday and she said "Ron Berger talked about how he's been an advocate of beautiful work for decades and now he's a real advocate of beautiful instruction." Can you say a little bit about that shift for you and what beautiful instruction means to you?

RB

As a project based teacher, what I worried most about was "Can I design a project which is so compelling for kids and builds in all the skills and concepts that I want that it will kind of run itself?" I thought "kids will run the classroom, it'll be like a newsroom or a science lab, they'll be working all the time." And that is ideally what we all want to do, and sometimes my classroom was truly like that. But what I was leaving out of that paradigm is that you have to build in a whole lot of lessons so that kids can develop enough of the concepts and skills to be able to work independently on what you want them to work independently on. And if you don't design those lessons well, then you're talking at them a lot, rather than having them engage and discover stuff in really powerful ways and learn to work as teams.

I spent decades learning how to design projects well and having kids create great work, and I didn't obsess about "How do you structure a really sharp lesson where kids are learning to collaborate, learning to think, learning to share their thinking?" Now for the past 15 years I've had this gift of traveling around the country and seeing great teachers and working with lesson geeks who are obsessed with great lessons. These are people who will get as nuanced as "That lesson would have been better if it was only three minutes here instead of five minutes," or, "Yeah, we used that protocol, but this protocol would have actually even been more engaging," or "We should have used pairs instead of triads there." And they've taught me that lessons can be beautiful if you do them well.

INTERVIEWER

What would you say to a project-based learning teacher who says "I'm putting a lot of thought and energy into thinking about the project, I don't have time and energy to design a beautiful lesson every single day, and thinking about like routines and structures"?

That the art of doing lessons well isn't that you have to kill yourself every time with a totally fresh idea. It's that you build a repertoire of lessons, frameworks, and structures and practices that you get better and better at, and so you can employ those components in a good lesson. It's a skill you develop. And I say that because I'm way better now when I do a demonstration lesson with kids than I was when I was back doing projects, because I wasn't thinking so sharply about lessons.

I work with one school, Two Rivers Charter in DC, which is a total lesson geek school. They obsess about lessons. They spent an entire year just focusing on how to end the lesson well. All their PD for a year was "How do we end our lessons well?" Now, in order to end the lesson well you've got to think about "Is every kid leaving feeling excited and clear?" "Is every kid leaving having gotten something important from the lesson?" "Is every kid leaving feeling a sense of closure to what we did that day?" Is the teacher leaving feeling like "I understand which kids got what, and which kids didn't, and I understand what my next steps will be?" And in fact, it's very hard to pull a lesson together at the end.

That year of geeky focus on lesson endings was amazing for me. And I joined them when they spent six weeks on exit tickets. I used to think, "Yeah, I get exit tickets," but I didn't. I didn't realize that the exit ticket can be used in so many ways: a sample problem that gives you a sense of which kids get a concept and which kids don't: a philosophical question about "How are you feeling about what we did?" It can be "What's your identity as a mathematician or historian?" It can be "How are you doing personally right now?" It can be "What other kids in the classroom are struggling that I should recognize that I don't know about?" It could be "Where are you getting help in the classroom from people that aren't me? And how are they helping you?" It could be "How are you changing in your thinking about this topic or this subject?" It could be "What am I doing in I teaching that's really helpful right now, what's not, and what advice would you give me?" It could be "What should we be doing next? What would be the next step if you were running the class?"

After that six weeks on exit tickets, I thought, "I'm going to be so much of a better teacher." Because my exit tickets were going to be so much more powerful and useful.. As a teacher, if I'm giving a lesson and it comes time for the end of the lesson, I've spent a whole year thinking about how to end the lesson well, and I have 20 different exit tickets in my mind. I can think "which is the right one for today's lesson?"

INTERVIEWER

I know that a lot of teachers struggle with bringing a lesson to a close more than any other part of the lesson, especially the part about consolidating or synthesizing the knowledge everyone's hopefully acquired during the lesson. Based on what you've learned from working with Two Rivers Charter, do you have any advice for how to approach knowledge consolidation at the close of a lesson?

RB

There's so much to say about how to close the lesson, but I think the clarity of your learning targets has a big effect on whether you can get consolidation or synthesis at the end of your lesson. I think lessons that are hard to close off normally don't have enough clarity about what the goal of the lesson was. So you need to make sure that not only you as a teacher, but all the kids understand the learning targets for that lesson.

You may not be sharing your target until halfway through the lesson because you've started with an individual grapple, or a group grapple. And then you say, "Okay, here's the learning target we're aiming for, let's discuss that and unpack that learning target together." Then at the end of your lesson, you may be building in a question directly around that target, or giving a performance test that's directly of that target. So if the target is "I can graph a linear equation" then you give them one linear equation and you ask them to do it on their graph paper and then you collect and you know. Or if the learning target is "I can explain two different perspectives on this historical issue," then you say in your exit ticket, I want a small example of two different perspectives of that.

So, if the learning target is super clear, generally the synthesis is clear, because you know what you're aiming for, and often, if the learning target is a little vague or not too sharp, then it's hard to get synthesis because you weren't quite clear what you're aiming for.

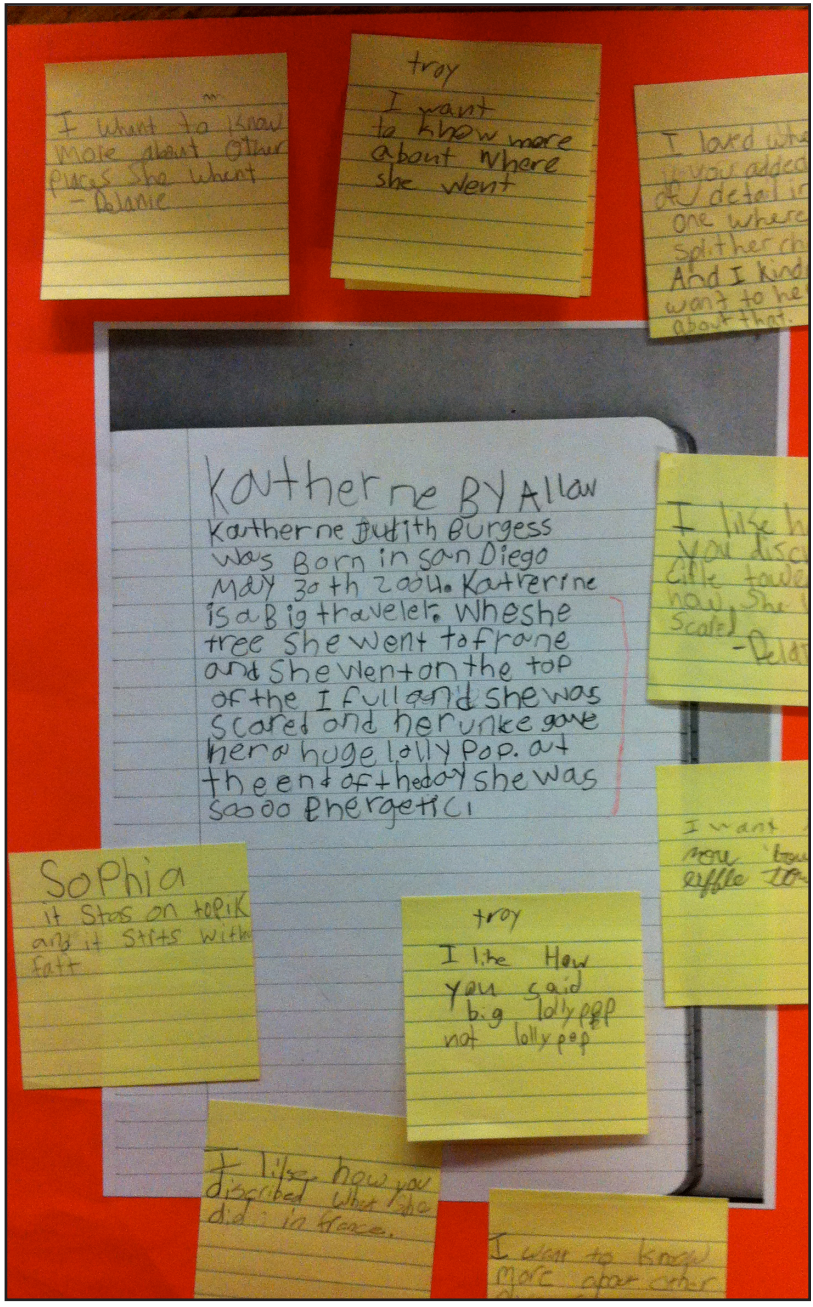
INTERVIEWER

And how do you feel about co-constructing learning targets? Because I know some teachers feel like, "I don't want to commit kids with the learning target, I want them to be figuring that out for themselves." And there's some pushback around that.

RB

I didn't use learning targets back in my teaching when I was in the classroom. Now that I do demonstration lessons and teach graduate level classes, I use learning targets all the time, because what the learning targets do—and I think not everyone understands this—is that the learning target actually empowers the kids because they understand what they're aiming for. They're not waiting for you to tell them how to get there. They can start charting more of their own course toward that target, because they understand, "Oh, that's what we're aiming for."

So I think you want to start with the teacher choosing the targets, especially since even teachers have a hard time constructing good learning targets at first. It takes years for the teachers I work with to become experts at creating good learning targets. It's unrealistic to assume kids can do that well right away. But what kids can, and should do, is critique your targets. And after a while they will be able to not only critique and refine the target you picked, but maybe construct better ones or suggest better ones. But it's not going to come right away for them. It's a learning curve for them just like it's a learning curve for teachers.



Artifacts from students' gallery walk critique.

Making Critique Work

Briony Chown
Explorer Elementary Charter School

Like many educators, I introduced critique to my class after reading Ron Berger's manifesto, An Ethic of Excellence. Following Berger's example, I explained to students that critique should be "kind, specific and helpful" (Berger, 2003, p.93). Initially, the feedback they gave each other was kind and specific but not particularly helpful — certainly nothing like the feedback Berger described his students giving to each other. For the most part, my students corrected each other's punctuation and grammar.

From speaking to other teachers in elementary, middle and high schools, I have found this to be a common problem. After trying a number of strategies, from children writing a question that critiquers must answer to modeling what good critique looks like, I found a simple solution: provide children with a checklist detailing what should be in the writing. I give this to the children before they start writing and then again when they are critiquing each others' work. This checklist differs from a rubric because it does not evaluate the piece of writing and there is no sliding scale for success: the writing either has an element or it does not. Equipped with this checklist, every child in the class can look at a peer's work and say what the writer has included, and what is unclear or left out.

The Goals of Critique

Creating the conditions for peer critique to thrive is one of the core

principles of my classroom. Without a culture of collaboration and critique, it falls upon teachers to impart knowledge, advise, judge, and guide. This is inefficient, and it creates learners who do not have ownership of their learning. In his conversation with Paulo Freire in We Make the Road by Walking: Conversations on Education and Social Change, Myles Horton explains that when we come to an idea ourselves, rather than because an authority has told us, it is far more likely to be retained (Horton, 1990). This sounds ridiculously simple but it is not the way that most people experience school. In a 2013 interview, the actor Daniel Radcliffe (best known for playing Harry Potter) spoke for the majority when he said he didn't do well in school because, in his words, "I am not somebody who will learn best when you tell me to sit down and be quiet and sit still. I learn by talking back and engaging in conversation and walking around." (Hattenstone, 2013). By allowing for many voices to be heard, a culture of critique enables us to begin to build the conditions for this active learning and collaboration. Juli Ruff, a ninth grade humanities teacher at High Tech High explains this well. In her work on using student voices to improve student work, Ruff explains that critique "invites students to take a critical eye to their own and others' work, and puts the student in a place of power, by asserting that his or her opinions and judgment about what makes for quality work matter" (Ruff, 2010 p. 6).

Another reason that critique is a powerful force for improvements in student work is that it allows students to see what their peers are producing. This creates a healthy sense of competition that is not to be underestimated. In fact, the single most useful thing that I can do to improve the quality of writing in my class as it is happening (as opposed to during critique) is to walk around the classroom and read aloud exemplary words or phrases that different students have used.

Sharp-eyed readers will note that in the example above, the teacher is still the arbiter of quality and imparter of knowledge, and when I introduced critique sessions, I found it difficult to step back (and difficult for students when I did so). The trouble was that after nearly two decades of formal education and several years of experience as a teacher, I had internalized schema for the elements of high-quality work that the students had not yet developed. Thus, left to their own devices, they honed in on what they knew (or thought they knew): grammar. As a result, I observed many children leaving critique sessions disappointed - they hadn't received useful feedback, they didn't feel like their peers had noticed what they had done. This wasn't because the students I teach didn't want to critique well, it was because they didn't have the skills to do so. That is where a checklist comes in: it provides a basis for conversation, a starting point and a focus. In his 1993 article, 'Choices for Children' a teacher told Alfie Kohn "I'm in

control of putting students in control." Checklists do just that.

Why Checklists?

Within the last two decades, checklists have revolutionized medicine. In The Checklist Manifesto, surgeon Atul Gawande explains how in 2001 Peter Pronovost, a critical care specialist at John Hopkins Hospital, implemented a checklist outlining the steps needed to correctly insert lines into patients in the ICU. He plotted the five steps needed to avoid infection and then authorized nurses to stop doctors if they were skipping a step. In the year after the checklist had been implemented, the ten-day line infection rate went down from 11% to zero. After two years Pronovost and his colleagues estimated that the checklists had saved eight lives and two million dollars. In addition, he found that the checklists "helped with memory recall and clearly set out the minimum number of steps in a process." Moreover, the checklist actually "established a higher standard of baseline performance" (Gawande, 2009, p. 39). The impact of these findings have led to other hospitals around the United States and Europe adopting checklists for patient care.

It seems absurd to equate the classroom with an intensive care unit. However, in both situations, a simple checklist has made a dramatic difference to the quality of the work. Similarly to Pronovost's findings in the ICU, I found that checklists provided students with a map for each step of their work and a tool to help them assess the work of others. Furthermore, these checklists improved the work of every student — just as Pronovost had found in the hospital.
In addition to helping students to assess the work of others, checklists have led to greater equality of feedback in the classroom. One of the challenges in a critique session is that some students are much better at it than others. While every student has a valuable contribution to make, many are not yet able to formulate their ideas in a way that can be easily understood by their peers. Checklists provide a structure upon which students can base their responses. Every student, whatever level they are working on, can look at the work of every other student and provide them with clear and useful feedback.

Checklists in the Classroom: The Results

At first, I created checklists that simply contained a series of topics that needed to be included in the work. I introduced my first checklist when students were writing artist statements for paper cuttings (see picture below) that we had produced to tell the story of somebody who immigrated to California. Each group had chosen one person who had come to California and then divided up their journey into separate

sections that were worked on individually. The paper cuttings were beautiful but they needed some explanation. After much discussion, the class decided that each group should write one joint artist statement to describe what the paper cuttings showed and how they fit together as well as individual artist statements. The components that students identified were the elements I compiled into the checklist. The finished artist statements were excellent. (See them all at http://eeroom15.weebly.com/a-room-of-their-own-online-exhibition.html)

However, this was a lot of work for the students and one group in particular needed a lot of support with the checklist. I have since moved on to creating separate checklists for each stage of the work. This allows the students to critique using a manageable amount of foci. For example, when my class wrote biographies, the first checklist indicated, paragraph by paragraph, what should be included, the second checklist focused on accuracy and meaningfulness to the subject of the biography, and the third checked for accuracy in writing conventions.

At the end of the project in which the students wrote biographies, I set up an anonymous survey to gain student feedback on various parts of the project. We had completed four critique cycles—the critiques based on the checklists listed above and an initial gallery walk. One question in the survey asked students to rate how the different critique sessions helped them to improve their biographies. Students chose from a Likert scale with the following options: it was extremely useful, it was useful, it wasn't useful, and I didn't do this. There are 24 students in my class and 18 of them completed the survey. Out of those 18, 16 children rated the three checklist critiques as either "useful" or "extremely useful." This is a contrast to the 11 children who rated our first gallery walk critique as "useful" or "extremely useful" (in fact, only 4 out of the 18 found that gallery walk to be "extremely useful").

Creating the Conditions for Success

A good checklist is one that is created with the students (Berger, 2003, p. 70). In order to do this, my class and I pore over models, both professionally written ones and those written by me to find out what makes a good biography, diary entry, newspaper report (or whatever we are writing). We talk about what we like, jot down phrases or words that we want to use and pull out the elements that make that piece of work successful (or not). As Ron Berger points out, using student work as models is particularly effective. Typically, I know the students are ready for a checklist when they are able to answer the question "What makes a good…" on the chart that they read when they come into school in the morning. I then organize these answers into a checklist, expanding on each point or breaking it down as necessary.

In his 2006 article, "The Trouble with Rubrics," Alfie Kohn states that "rubrics are, above all, a tool to promote standardization" through a "narrow criteria for what merits that rating." He then questions whether "standardizing assessment for learners may compromise the learning" (pages 6 - 12). Kohn's criticism of rubrics is predicated on the idea that rubrics are evaluative and prescriptive. On the other hand Ron Berger sees rubrics, not as a way to narrow student work but as a way for us to "try to name features of the work that we feel are making it successful." (Berger, 2009). In An Ethic of Excellence, he explains that projects "begin with a taste of excellence." The teacher and the students work together to "critique and discuss what makes the work powerful" (Berger, 2003, p. 31). These "list(s) of strong dimensions" (Berger, 2009), containing elements of success to guide students to creating powerful pieces of work are what the students create when they reply to my question on the morning message chart. I then organize and expand upon their thoughts to create a checklist.

To keep checklists from becoming, in Kohn's words, "tools to promote standardization," it is important to explain to students that checklists are not rule books. While the first checklist for our biographies stated what information would be useful in each paragraph, writers could choose whether to follow it. In addition, no student was required to alter their work based on the critique—if the critiquers had noticed that information was missing but the writer didn't wish to include it, then that was their decision. However, most children leapt on the critique sheets when they were returned. From scanning down the list of checks and crosses they quickly identified which areas the critiquers hadn't found in their work and they rushed to the computers to make changes.

Finally, I have found that checklists work best when students work in

pairs to read each other's work and then check that all the elements have been included. When children critique individually, they are more likely to be too accommodating or too exacting but critiquing in pairs slows down the process and means that the critiquers must be able to discuss and justify their judgments.

A Mental Map

Providing useful critique is hard. It is hard for adults and it is even harder for children. As a result, loosely structured critique can leave students frustrated, confused and even more reliant on their teacher than they were before. I found that checklists gave students the mental map they need to see the piece of writing that they were critiquing as both a whole and a set of components. It is clear from the student survey responses that the children I teach found that checklists helped them to improve their work and gain relevant feedback. Without a clear structure, the critique process can reinforce inequality between students. With the transparent structure that a checklist provides, critique can become a powerful force where every voice is equal and important.

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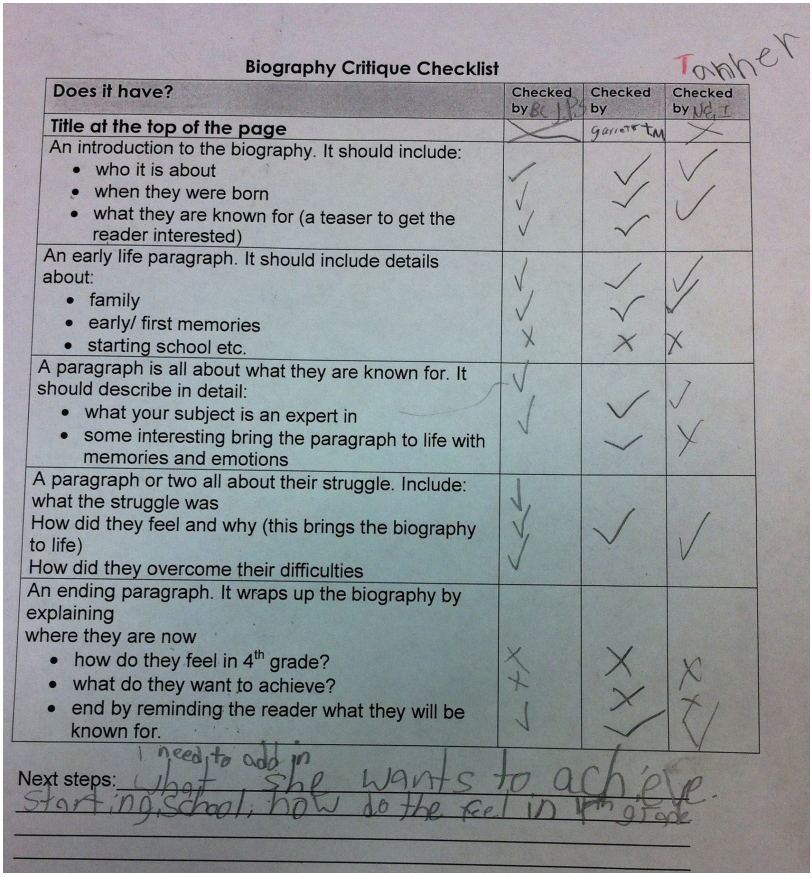
To learn more about Briony's work at Explorer Elementary, visit http://eeroom15.weebly.com

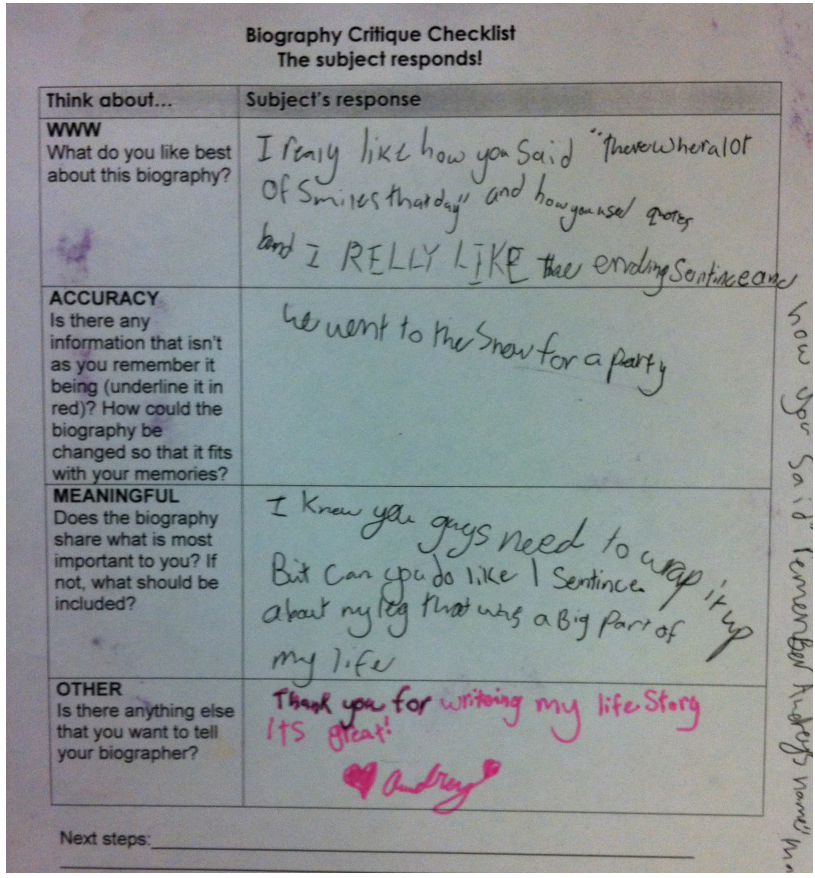


Biography Critique Checklist

Does it have?	Checked by	Checked by	Checked by
Title at the top of the page			
An introduction to the biography. It should include: • who it is about • when they were born • what they are known for (a teaser to get the reader interested)			
An early life paragraph. It should include details about: • family • early/ first memories • starting school etc.			
A paragraph is all about what they are known for. It should describe in detail: • what your subject is an expert in • some interesting bring the paragraph to life with memories and emotions			
A paragraph or two all about their struggle. Include: what the struggle was How did they feel and why (this brings the biography to life) How did they overcome their difficulties			
An ending paragraph. It wraps up the biography by explaining where they are now • how do they feel in 4th grade? • what do they want to achieve? • end by reminding the reader what they will be known for.			

Next steps: I need to add in what she wants to achieve. Starting school, how do the feel in 4th grade

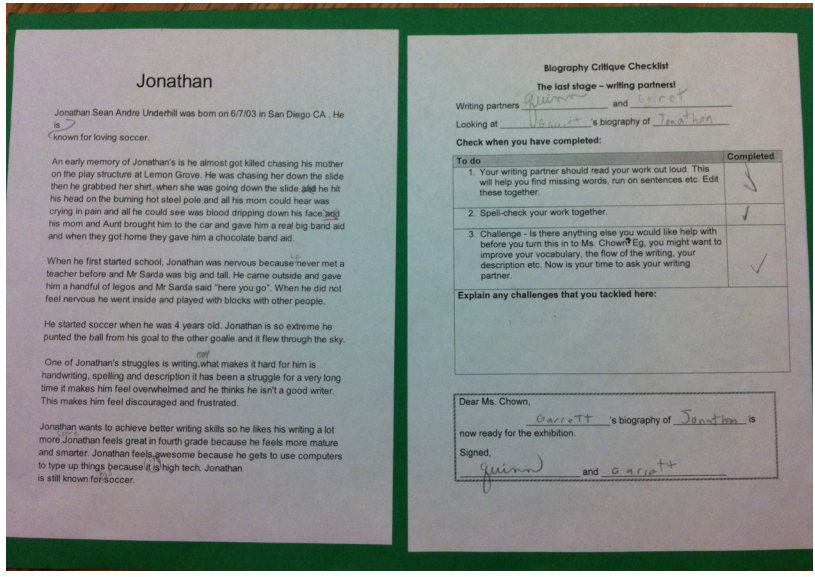
Above—Appendix 1: paragraph by paragraph checklist.
Right, top—Appendix 2: truthfulness and meaningfulness checklist.
Right, bottom—Appendix 3: writing conventions checklist.



Biography Critique Checklist
The subject responds!

Think about...	Subject's response
WWW What do you like best about this biography?	I really like how you said "there where a lot of Smiles that day" and how you used quotes and I REALLY LIKE thee ending Sentince and how you said remember things
ACCURACY Is there any information that isn't as you remember it being (underline it in red)? How could the biography be changed so that it fits with your memories?	he went to the Snow for a party
MEANINGFUL Does the biography share what is most important to you? If not, what should be included?	I know you guys need to wrap it up But can you do like 1 Sentince about my leg that was a Big Part of my life
OTHER Is there anything else that you want to tell your biographer?	Thank you for writing my life Story It's great! ♥ Audrey

Next steps:_____



Jonathan

Jonathan Sean Andre Underhill was born on 6/7/03 in San Diego CA . He is known for loving soccer.

An early memory of Jonathan's is he almost got killed chasing his mother on the play structure at Lemon Grove. He was chasing her down the slide then he grabbed her shirt, when she was going down the slide and he hit his head on the burning hot steel pole and all his mom could hear was crying in pain and all he could see was blood dripping down his face and his mom and Aunt brought him to the car and gave him a real big band aid and when they got home they gave him a chocolate band aid.

When he first started school, Jonathan was nervous because never met a teacher before and Mr Sarda was big and tall. He came outside and gave him a handful of legos and Mr Sarda said "here you go". When he did not feel nervous he went inside and played with blocks with other people.

He started soccer when he was 4 years old. Jonathan is so extreme he punted the ball from his goal to the other goalie and it flew through the sky.

One of Jonathan's struggles is writing,what makes it hard for him is handwriting, spelling and description it has been a struggle for a very long time it makes him feel overwhelmed and he thinks he isn't a good writer. This makes him feel discouraged and frustrated.

Jonathan wants to achieve better writing skills so he likes his writing a lot more.Jonathan feels great in fourth grade because he feels more mature and smarter. Jonathan feels awesome because he gets to use computers to type up things because it is high tech. Jonathan is still known for soccer.

Biography Critique Checklist
The last stage – writing partners!

Writing partners Quinn and Garrett
Looking at Garrett 's biography of Jonathan

Check when you have completed:

To do	Completed
1. Your writing partner should read your work out loud. This will help you find missing words, run on sentences etc. Edit these together.	✓
2. Spell-check your work together.	✓
3. Challenge - Is there anything else you would like help with before you turn this in to Ms. Chown? Eg. you might want to improve your vocabulary, the flow of the writing, your description etc. Now is your time to ask your writing partner.	✓

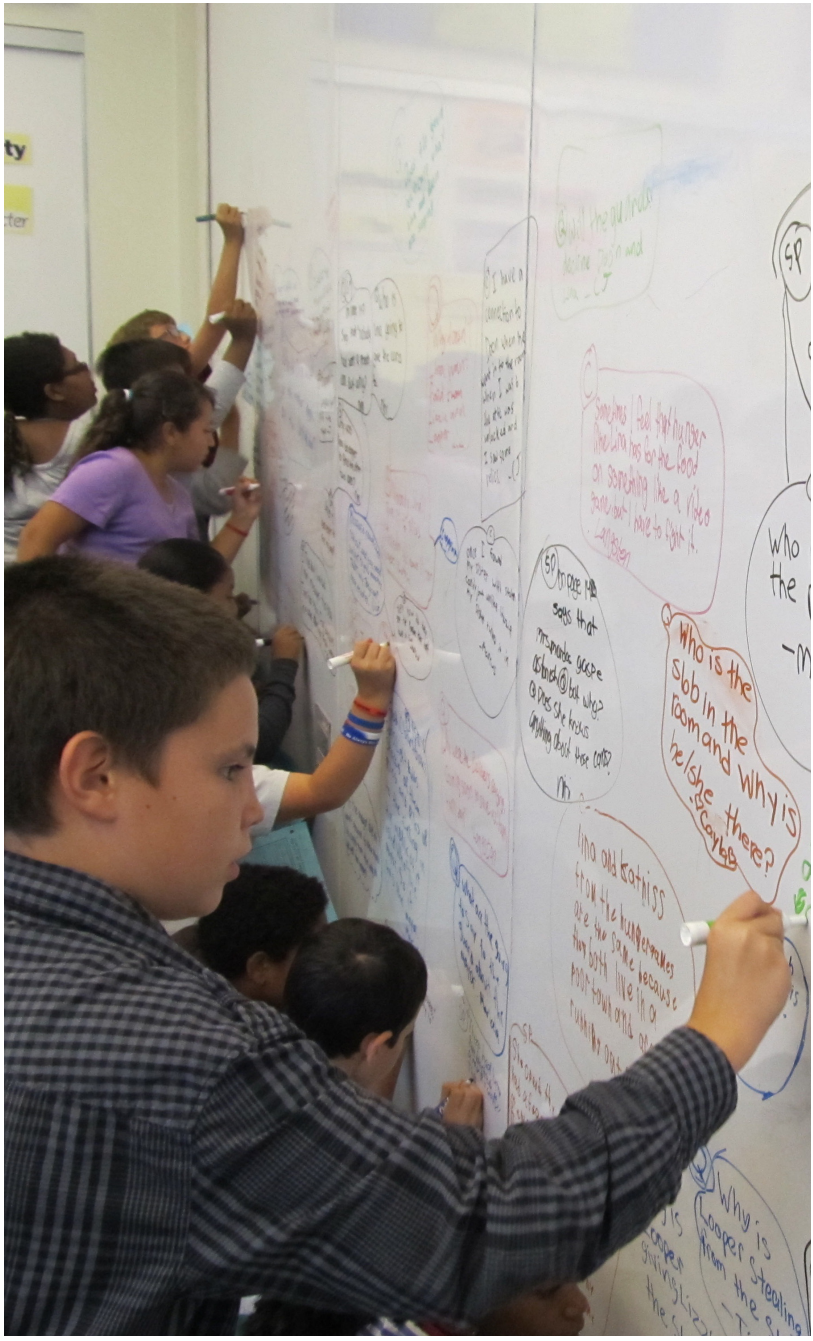
Explain any challenges that you tackled here:

Dear Ms. Chown,

Garrett 's biography of Jonathan is now ready for the exhibition.

Signed,

Quinn and Garrett



Students at High Tech Middle engage in a graffiti discussion.

Graffiti Discussions:
Igniting the Silent Majority

Bobby Shaddox
High Tech Middle School, San Diego

I read aloud, "The main thing to do is pay attention. Pay close attention to everything; notice what no one else notices. Then you'll know what no one else knows, and that's always useful." I close my book and pause dramatically. Silence. I scan the classroom and search for evidence of deep thinking. More than two dozen students squirm in their seats and rifle the pages of their books nervously. "What is the main character referring to in this passage?" I ask slowly and deliberately. Only three hands pop up. Everyone else sits silently.

I'm a humanities teacher. Because one of my passions is nurturing a love of reading in my students, we read at least two novels a year as an entire class. However, over the years I have consistently found that our full-class discussions around these novels favor the involvement of a minority of outgoing, confident students. Hoping to uncover the perspectives of my more reserved students, I informally surveyed them. They told me that they don't participate in class discussions for a variety of reasons ranging from social anxiety to variations in learning styles. Over the last two years, I've addressed the roadblocks to participation by creating an alternative to spoken, full-class discussions. This alternative has ignited the silent majority and created more equitable conversations. I call it graffiti discussion.

From Quiet Drizzle to Massive Puddle:
The Formation of a Graffiti Discussion

I first got the idea for graffiti discussions from a practice, used widely at the High Tech High schools, called chalk talks. Graffiti discussions take the notion of a group brainstorm to a more organized and literary level, incorporating reading comprehension skills. The "discussion" is silent. It takes place in writing on a wall via markers, chalk or sticky notes. The activity invites all students to participate simultaneously and allows them to see and connect their writing to each other's thoughts. The conversation builds upon itself, allowing students access from multiple points and emphasizes sharing ideas, rather than winning a debate or being "right." Through graffiti discussions we aim to develop students' skills and confidence as critical readers. The socially constructed nature of the activity breaks students out of isolation and helps them share interpretations. Students get the opportunity to check their ideas against those of their peers and the teacher.

I have always found that the initial success of a classroom activity is contingent on setting up clear and simple norms. Graffiti discussion begins with these initial agreements:

1. We let our pens do the talking. Graffiti discussions are silent.

2. We take chances with our ideas and don't worry about being right.

3. We do our best to build on each others' ideas and lift each other up.

4. Every student adds to the conversation at least once.

As our class practices and improves the process, we revisit these norms and add to them where we see fit.

Graffiti discussions take place while students are silently reading the class novel. Students write questions, connections, passages and comments in their humanities journal and contribute their most compelling ideas to the white board. In order to assure full participation, I float around the class and plant seeds of encouragement, coaxing reluctant students to share their ideas on the wall. The discussions are like rainstorms. They begin with a quiet drizzle (one or two catalysts) and develop into a massive puddle of ideas within half an hour. Students shared their thoughts, using expo-markers, on a whiteboard via the following modes, which they note next to their contribution:

Modes of Communication in Graffiti Discussion

Question

Students may ask a question in order to understand further or push their classmates' thinking further.

Answer

Students may answer anyone's question. They're encouraged to use the text as evidence to support their response.

Connection

Students may write about a connection they make with the text. It can be a personal experience or something from another book, movie or TV show.

Significant Passage

Students can select an important passage from the text that will spark conversation on the white board.

Comment

Students can make a comment about a question, answer, connection or significant passage.

How Do Students Experience Graffiti Discussion?

I've always taken it as a good sign when students approach me before class and ask if we'll be doing a particular activity. "Will we be doing a graffiti discussion today?" is a common question at my classroom door. Students enjoy the transformation of a typically solitary activity (reading) into a socially interactive activity. One kid explained, "I like graffiti discussions because everybody gets to react and answer each other's questions instead of writing it on a piece of paper." But their interest extends beyond social stimulation. Students also note that the activity levels the playing field for everyone and facilitates peer-mentorship. As one student pointed out:

"I think asking questions in graffiti discussion is really good. Because, if a student doesn't know what to do they can actually just write it on the board and ask them. And another student can come by and answer their questions."

Putting Students In Charge of Graffiti Discussion

When we first started graffiti discussions I acted as the sole facilitator—answering questions, monitoring the quality of ideas added to the board and tracking participation. I recently surrendered this facilitation to students. What an idea! Now, students sign up to play the roles of Conversation Captain and Conversation Tracker. These two students, excluded from the day's reading (which they make up at a later time), run the show.

The Conversation Captain checks the ideas of their classmates, which they have written in their journals, before they are added to the wall. Is the idea clear? If not, the Conversation Captain provides suggestions or asks questions to nurture the development of the idea. This helps our graffiti discussion steer away from one-word contributions. Before we implemented this safe-guard "Cool!" and "Yes" were popular comments. The Conversation Captain also helps direct students to threads that relate to their idea. The Conversation Tracker tallies the students' participation in the graffiti discussion, marking the names of participants and noting the type of ideas added. At the end of the graffiti discussion, the Conversation Tracker gives a report summarizing the day's activity and recognizing students who went above and beyond in their participation.

The addition of these roles has helped free me up to provide help for struggling students and has boosted student participation. While one might worry that students would strive for quantity over quality, the student-facilitated discussions have been just as deep and insightful as when I facilitated them.

How Do You Conclude A Graffiti Discussion?

When I first used graffiti discussions, I struggled to find ways to conclude the activity. We were often left hanging with an amazing cluster of ideas on the class whiteboard that didn't seem to resolve. Over the course of this school year, I experimented with several conclusion activities.

1. Graffiti Discussion Journal Response
At the suggestion of my graduate school mentor, I developed a protocol for journaling in response to ideas within the graffiti discussion. During the last 10 minutes of the activity, students browse the ideas we've generated, pick a "bright spot" to celebrate and write a response in their journal. A "bright spot" is a thought-provoking question or a strong idea worth celebrating. After journaling, a few students choose to read their entry aloud.

2. Bright Spot Discussion
I often use a variant of the journal writing to conclude a graffiti discussion, which involves an oral recap of the activity. I begin by asking the Conversation Tracker to share out the day's stats, and then to facilitate a discussion with their classmates. We look for four students to share out "bright spots" in our graffiti discussion. Here's an example of a bright spot that was shared. This thread helped answer a student's question and sparked a personal connection:

(Students responded to a moment when the protagonists emerge from the underground and see the night sky for the first time)

Question: What are the glowing things in the sky?

Answer #1: Stars.

Answer #2: Stars. The book describes them as little specks of light and they looked like salt.

Quote & Connection: "He was smiling & crying. She realized she was too." We took my neighbor to my dad's concert yesterday. She was so excited because she never gets to go out. At the end of the concert she was smiling and crying so much because she was so moved by the music and was thankful for our invitation.

Identifying these types of contributions together helps provide models for future graffiti discussions. These examples push students to try new things and move towards an increasingly connected discussion. Plus, students love to be recognized for their "bright spots." When another student or a teacher celebrates a third student's writing to the class, you can feel the love in the room.

3. Choose a Prompt for Tomorrow's Warm-Up
Sometimes I am reluctant to end an engaging graffiti discussion to make time for journaling or a bright spot discussion. In these cases, I take photographs of the writing on the board. I then choose one or more ideas for a prompt in the next day's journal warm-up, which I project onto the screen at the beginning of class. This is a good way to revisit crucial ideas from the previous day's discussion before continuing with the reading. Students also love to see their writing displayed for all to see and used as a prompt for their classmates. I make sure to give them credit for creating the warm-up.

Reflections on Graffiti Discussion

Throughout the two years I've used this approach to literature

discussions, I've seen remarkable improvements in the quantity and quality of student participation, not to mention the sense of ownership felt by my students. Engagement was heightened simply by the use of expo-markers on the whiteboard and the opportunity to move around. Many students remarked on how much more fun it was to write on the wall than in a journal. The activity also provides students with an audience for their writing, which motivates many of them. I've seen many students who self-identify as non-readers emerge as huge enthusiasts of graffiti discussion.

Students also experience a reduction in anxiety throughout the activity. Silently writing amidst a group of students seems less daunting than raising your hand and speaking in front of the whole class. One student pointed this out when she remarked, "You can hear everybody's voice. Some people are afraid to raise their hand in front of the class because they think it's not a good idea. But, on the board, you can write it down and it can actually be good." As a result, those quieter voices that are often lost in whole-class discussions begin to emerge.

Furthermore, graffiti discussions automatically differentiate for a variety of learners. Students are able to read the board and contribute when they are ready, which helps them to develop their ideas and makes sharing safer (much like a pair share or pre-writing exercise). The low-volume nature of the activity also helps students concentrate on their reading and their ideas.

Ultimately, what I love about graffiti discussions is seeing the control within my classroom shift from teacher to students. Traditionally, the class novel read-aloud and lecture is a teacher-centered affair. Students depend on a teacher to ask questions and illuminate meaning from the text. With graffiti discussions, I see my students undertaking these tasks with confidence. Students ask the questions, answer them, find themes and symbolism in the text and help one another to understand the story more deeply. Graffiti discussions have shown me that when students make the shift from "doing" a process to "owning" a process, they can transcend our wildest expectations, and their own.

Doing the Project Yourself: Reflections on the Writer's Craft

Kelly Williams
Gary and Jerri-Ann Jacobs High Tech High

In the world of project-based learning, prototypes are necessary for success. This is one of the most important steps in designing curriculum because it allows for the teacher to understand timing, scaffolding needs, and establish clear expectations. Many teachers are on board when it comes to creating a physical product whether it is building a model in engineering class, producing an animation in multimedia class, or creating a painting in art class. However, when it comes to Humanities, why do teachers tend to shy away from prototypes of writing? Perhaps because it is a long, sometimes tedious undertaking. Perhaps because our inner critic never believes our writing is good enough. Perhaps because writing is just plain difficult. No matter the reason, it is one of the most important models teachers can provide. I discovered this when partnered with Jeff Robin, a senior art teacher and project-based learning expert, through our 2013 project, The New Path of the Buddha.

*****

It was painstaking. That judgmental, LOUD inner voice just would not seem to go away. This has to be the best writing you've ever done. All of your students and your teaching partner will judge you. You're supposed to be the expert. These thoughts circulated as I attempted to write a short fiction piece about Sidney Allen, an upper-class school girl turned punk rocker in 1970s London. My narrative was to be the model for my seniors' spring semester project, which entailed students

taking Hermann Hesse's Siddhartha and reimagining it in a new time and place. My teaching partner, Jeff Robin [Art], had already created the storyboard images, and now it was my job to make the images come to life with words.

I wrote feeling a combination of anxiety and joy. It had been years since I had written a long creative piece, so it was fun to climb inside the head of the characters and imagine the various scenes. However, I was anxious. That inner voice kept rearing its ugly head making me overly critical of each sentence. I lost count of how many times I re-read my opening or asked my poor husband what he thought of whatever paragraph I was muddling through. Normally, I write with abandon and then spend an exorbitant amount of time revising, but for some reason, I nit-picked desperately, needing each sentence to be perfect.

Four 8-hour weekend days plus the weeknights in between and I was finally ready to show the story to Jeff. I made sure he knew that it was still "a work in progress," not so much because of my belief that writing is never done but because I wanted to give a disclaimer in case it wasn't up to par.

Jeff read the story and said he was impressed. This brought some relief so that when he offered some revisions I felt less like crouching in the corner ashamed at calling myself an English teacher. He laughed at the inconsistencies in the story. I had Sidney eating pizza after a concert when fish and chips would have been the more accurate late night London choice. I had just had a baby, so for my pregnant protagonist, I wrote detailed scenes of doctor appointments, the length of the pregnancy, and the baby's weight and height. My experience was so fresh, yet I failed to realize that this type of detail was unnecessary for the purposes of our story. I made these and other necessary changes before the true test of my work—presenting it to the students.

Before distributing copies of "Sidney Allen" to my students, I told them of my anxiety. I told them how personal writing is and how difficult it is knowing that someone is going to judge your work. I also gave them my disclaimer. "Keep in mind that it's still a work in progress. I'd love your feedback," I announced. Students then read and annotated the story for warm and cool feedback as I fretfully waited. Teenagers are so honest, which is great for feedback but sometimes hard on the ego.

As expected, the students provided insightful feedback. Delicately, they told me my dialogue needed to be more accurate to the character and the ending seemed rushed, but the students liked my description and overall storyline. The best part was that during this feedback, I was able to discuss my writing process candidly. I told them how I am typically

a verbose writer and how it was difficult knowing when to expand and condense. I told them how the storyboard images really helped because I could focus on the description rather than determining the plot. I told them how it was difficult to get started, but once I did, I really enjoyed the process and hoped they had a similar experience.

I had always bought into the idea of doing the project yourself and had always provided models for my students in previous years. However, in the past, I used writing models I had collected from former students or wrote the shorter writing models myself. For instance, I created a 6-word memoir model, a 55-word fiction model, a one-page memoir—basically, I wrote anything I could complete during my prep period. With Jeff being the PBL expert that he is, I committed to doing the project in its entirety, which meant I had to do all of the writing.

Over the past two years, I have written much and learned more. I wrote an analytical essay identifying motifs in three of Steinbeck's novels. Because I wrote this essay, I was reminded of the importance of annotating the text and discovered there were several approaches to structuring the essay. Writing "Sidney Allen" allowed me to see the value of the storyboard and how the students should reference the images to capture the detail with their words. I wrote an essay model for my honors students who were to apply a chapter from Thomas Foster's How to Read Literature like a Professor to their book of choice. This allowed me to show students how to synthesize information and provide evidence from multiple texts. For each writing piece, the students could not only reference the model and requirements but could hear my struggles and insight, which made for better essays.

So, why should Humanities teachers complete writing prototypes? Yes, writing takes time, but it is beneficial to work on your craft and remember the struggle of writing. As you're doing the writing, you can see what scaffolding is appropriate, the different ways to organize the writing piece, the types of problems students might face, when to schedule benchmarks and critique, and how the final product will look. Writing projects will be more solid and well-planned. The assignment transforms from an abstract idea to a tangible product. The students see what you are intending and have a reference for the trajectory of the writing piece. It provides a concrete example that students can better reference.

"Not only did I learn what length and style the teacher wanted, but I also learned the voice, perspective, and general point she wanted us to convey. A full example helps clarify and generate ideas that I can then use in my own writing. The fact that she spent her own time writing a model showed me that she really cared about our final product.

When reading it, you could tell she spent a great deal of time and effort writing an example for us to base our own writing on."

—Josh Quiroz, senior at HTH

Most importantly, doing the project makes teachers remember what it is like being on the other side of the desk. For me, it reminded me of my procrastination and verbosity, which mirrors many of my students' struggles. I remembered the value of planning and organizing my essay, and it reinforced the importance of critique. Writing also allowed me to share in my students' frustrations, and it seemed like I gained more buy-in because they knew I had been there. We had a shared experience. The writing process became visible for the students, and this was invaluable because many believed good writing was inherent and not something everyone struggled through in some way. Although it is scary to put ourselves out there, it is necessary, especially if we are asking students to do the same.

It is one of High Tech High's most fundamental design ideas to have teachers do the projects before the students do. It is a chance to iron out kinks and learn the best way to present the project to the students to achieve the best response. Knowing what the students go through when they do the project is another key benefit of doing the project before the students. It produces an understanding of what the students might be feeling - when they're stressed, when they're productive, when they are fed up. It makes it so the teachers can prepare for every question, comment, or complaint the students come up with. Lastly, it makes for a very smooth assessment process. The teachers who do projects beforehand know how much effort is put in to create good work. They'll have a good indicator of how much students have tried to produce the quality of work they do.

—Britton Hayman, senior at HTH

As Ray Bradbury said, "Quantity produces quality. If you only write a few things, you're doomed." So do the project, even the longer analytical essays, research papers, and creative pieces. Your students will benefit, you will benefit, and your projects will benefit.

Lila Speaks

Juli Ruff
High Tech High

As of yesterday, it had been 13 weeks, or 55 school days, since school started. Yet it was the first time Lila spoke. I thought it was a miracle. Then it happened again today, on day 56 of the year.

I guess I should clarify. It is not that Lila has never said a word. She has just never raised her hand, read anything in front of her peers, performed during any oral presentations, or offered any input in group settings. She has twitches. They do not seem overly exaggerated to me, but if I were a ninth grader I would probably be just as self-conscious about them. It doesn't help that when Lila is nervous, which happens when speaking in front of her peers, the twitches increase in frequency and severity.

We have made numerous plans, because her current excuse from all presentations is only temporary. The first plan required Lila to raise her hand once during a 9th grade conference and say the words, "I agree," after someone else spoke. The next day she said, "I wanted to, but I couldn't." The many non-classmates in the group seemed to be an obstacle, so we made a new plan. Lila would raise her hand in class one time per day and say if she agreed or disagreed with another student. We agreed that this smaller audience of kids she knew was more realistic. Two weeks passed without a single hand raise. Her answer remained, "I wanted to, but I couldn't." In the third plan, we decided I would give Lila a question I would ask before class so that

she could write down the answer and just read it. This plan showed promise, but did not work so well either.

Lila is not the only student I have with extreme trepidation when it comes to sharing with the class. I have taught 13-year-olds that could not read The Cat in the Hat, but I have never experienced a class with so many students so self-conscious about speaking or reading in front of others. When I ask for responses I hear the four or five gregarious students over and over, and when I ask specifically for others, I get red faces, silence and absolute refusal. Ironically, this is the year I decided to buckle down and really get my kids to interact more and critique each other's work. Needless to say, it has been a tough sell to this particular group. We have been working on poetry for six weeks now, and it seems to be the perfect thing to share. But when I said taking part in a critique was a requirement, I swear I heard gasps similar to final breaths.

I decided I would to stick to my guns. Through tears, yelling, refusal, and whatever they threw at me, these kids would share some of their work. What I did decide to let the students control is how the critique was organized. I gave them a survey with three questions. The first asked them how they felt about sharing their work, with the scale ranging from "I enjoy it" all the way down to "It is the most terrible thing I can imagine." I also asked what environment is most comfortable to share work: large, medium, small group or individual sharing. Lastly, the students chose if they would rather receive feedback aloud in a group, during one-on-one conferencing, or through written notes.

With surveys in hand, I put the kids in groups, noticing significant trends on who wanted what. Though there were kids who wanted as many people in an audience as possible to tell them what they thought aloud, a large portion of the students requested to do their critique sessions with between 5 and 10 peers. From here, there was a clear gender split. Boys most often wanted to receive feedback aloud and girls wanted to receive feedback via one-on-one conferencing or notes. Following this trend, I set the critique sessions up by gender. Here is where it gets amazing.

When things were split up by gender, every single one of the girls felt comfortable receiving feedback aloud in her small group, forget what she said on her survey. Lila not only offered a critique of each girl's poems, but also read her poems in front of the group. She sought me out after class to say what a great experience it was for her, that it felt good to be heard.
The boy critique sessions had a very different, yet still positive feel. One group consisted of six boys who had asked for that environment

and two that were only there to offer critiques, but not read work. One had chosen to do ten separate critiques and already completed them. The other refused to share his work with any peer, ever. We were still in negotiations. After the critique session, all of the boys commented on how good they felt about it. The student who had already completed his individual critiques lamented that he did not share in the small group. The boy who had refused to share said he would be willing to read in front of this group. That was Friday. On Monday we reassembled; it was the first time that this student had ever shared his work with any peers. Ever. That was day 54 of the school year.

That brings us back to Lila and her miracle. She spoke on day 54, in her critique session. She raised her hand in class on day 55 and told a student how much she enjoyed the flow of his poem. Today, day 56, she raised her hand in front of 47 of her peers, some of whom she does not know well, and offered insight into what makes for good and not-so-good writing. I have taken to calling her SuperLila. She just smiles.

It has always been my goal to teach my students to value the tough stuff and revel in the thrill of facing a difficult task. I want my students to learn that they should not limit themselves in life, that struggles must be seen as opportunities. The thrill of success in difficult situations has an addictive effect. Most of the time, my students experience this and one success leads to another. Yet, for some students, the usual baby steps are still too big. This time—in a process where I insisted that all students share, acknowledged their fears, and made the process as comfortable as possible—several students gained the confidence and freedom to speak in front of others.

For me, the most challenging part was managing the whole process. I did not facilitate all of the critique sessions personally, and relied on academic coaches and my teaching partner. What started as an experiment in differentiation turned into a reaffirmation of small schools, small classrooms, and the consistent presence of adult academic coaches. Continuing to provide the small critique session option to my students will inevitably require training students to run them. The logistics of that task seem daunting to me. For today, I am grateful to work at a place where a team of adults will be there on day 57 and beyond to help SuperLila and her peers choose not what makes them comfortable, but rather what is tough and, ultimately, rewarding.

On the Trail of the Literacy Campaign: An Internship in Cuba

Timoteo Delgado
High Tech High

Once you learn to read,
you will forever be free.
—Frederick Douglass

As I sit in a small living room, an elderly woman details her experiences fifty years ago. She was seventeen, her country had just experienced a revolution, and drawn up in the spirit, she volunteered to join Cuba's literacy campaign. I can hear cars driving by and kids yelling on the street below us; hopefully the microphones won't pick up the noise. Her Cuban accent slurs some words and she is sometimes hard to follow, but her stories are captivating. I am told about a defining experience in her life, a point of realization and discovery. With thousands of other teenagers, she learned what it was like to transform a country for the better.

Juniors at High Tech High are required to complete a three-week internship at the end of the academic year. To expand my internship experience beyond the typical workspace, I searched for options outside of the United States. Traveling to Cuba was particularly intriguing to me, as its government and economy are in a transitional state. Luckily, I had a contact to Catherine Murphy, who directs the Literacy Project. The project documents various literacy campaigns by making documentaries and archiving oral histories. The project originally focused on Cuba's literacy campaign, which served as a model for similar campaigns in other countries throughout Latin America.

As an intern I had the privilege of participating in collecting oral histories about Cuba's literacy campaign of 1961. Fifty years ago, following the revolution, more than 100,000 students from the cities volunteered as brigadistas in the campaign; most of them were 12 to 19 years old and over half were women. The students were loaded up into trucks and driven to the countryside. For many months these dedicated teenagers lived with impoverished families, teaching them how to read and write.

During my stay in Havana, I lived with the godson of my father's friend, Osciel (a 20-year-old nurse) and his older brother Lester. Their apartment was in a beautiful but deteriorating Spanish building. My annual travels to El Salvador and other Latin American countries had accustomed me to a limited standard of living. I ate a dinner of mostly beans and rice every night at Osciel's parents' house. Despite the limited menu, the family was incredibly warm and hospitable, sharing what little they had.

My main task was to locate brigadistas and their former students and to interview them. Cubans tend to be highly sociable, so finding people who were involved in the Literacy Campaign was not a problem. Osciel's mother helped me find brigadistas and Catherine Murphy had arranged for Norma, one of the central figures in the documentary Maestra, to connect me with other former teachers. Norma had been a brigadista as a teenager, and is now a retired psychologist. She has a dynamic personality and a striking collection of hats. She also has a broad network in the Afro-Cuban community of Havana, where I lived and did most of my work. Overall I interviewed 14 people—12 former teachers and two former students.

What was most compelling to me about the interviews, and was universal to all of them, was the teachers' sheer dedication to improving the living situation of their fellow Cubans and their country as a whole. Members of the Juventud Rebelde, the revolutionary youth organization that the new government sets up, were encouraged to volunteer. "I wanted to help spread literacy because it was something the country needed," said Angelica Martiz. Despite all obstacles, the brigadistas were determined to uphold the revolutionary spirit that had swept their country. This campaign was one of the first major acts of the new government that transitioned its military revolution to a social one, in order to bring about unity, equality and change.

The country was still stabilizing at that time, and the brigadistas faced danger. One brigadista I interviewed described how she had received a letter from an anti-revolutionary group threatening her life. She knew of another literacy teacher who had been killed earlier that year and

took the threat seriously. Her supervisors advised her to go home, but she refused. The government then issued her a gun for self-protection. The interviewees routinely recounted incidents that revealed the depth of their determination.

The young brigadistas traveled far from home to spread literacy. The campaign lasted for ten months, and during that time the volunteers lived with families in the countryside, a life they had little or no previous conception of. To travel from the city to the countryside at that time for Cubans would be the equivalent of Americans going to work in developing countries today. The brigadistas explained that "where we were there was not potable water, there was not light, there were not sanitary services." But beyond that, "there were no schools, there were no hospitals, there were no social services." The volunteers witnessed first hand what had incited the revolution.

During the day the volunteers helped their students with agricultural work or explored the area, but in the afternoon they taught. As one volunteer described, "At first they [the peasants] were reluctant, afraid that it would be too difficult an accomplishment. It took a little bit of work and we had to gradually build their confidence in us. They realized how important this was for them. I started out teaching one or two; when others saw them learning it turned into then three or four, and

then ten, and then twenty until I had a huge group of people to tutor." People who once did not know how to write their name and had to sign documents they could not read with a fingerprint, were soon capable of basic reading and writing. Students reported that for peasants who relied on buying and selling goods for a living, literacy brought new leverage to their interactions as they could more competently negotiate and make agreements. It also allowed the peasants to organize as a community.

Cuba's campaign also played a pivotal role for women in society. Women in Cuba, especially in comparison to other Latin American countries, play an incredibly active role in society and government. Brigadistas reported that they became much more independent and self-confident because of their months in the campaign. This was particularly significant as most of the brigadistas, and most of my interviewees, were women. Parents were often reluctant to let their children go, but especially their daughters, as women had been more protected. The experience not only meant that their parents gave them more freedom, but changed the way they saw themselves and what they felt they were capable of.

The brigadistas drew strength from their experience but perhaps even more from the relationships they forged. I interviewed three brigadistas together; they had trained together fifty years earlier and were still close friends. They met at the famous beach resort Varedero, which the government had turned into a training facility for the brigadistas. They went to the same area of the country, the Sierra Maestra, although they were many miles apart and so could not see each other often.

However, every once in a while they made the trek and bonded over their experience, a bond which was still very evident 50 years later as they laughed together during the interview.

Cuba's literacy campaign served not only to unite brigadistas with each other, but was also a way to unite the country after the revolution. One brigadista explained to me how she "confronted a reality that she did not know existed." For her, the campaign brought a consciousness of the difficulties that peasants were facing. Another teacher recounted that the fact that homework had to be done by candlelight was a blow, but it "taught me to help people, so that things would get better, so that in an era ahead people could have another kind of life." The brigadistas lived among the peasants as family, each group bringing a component of their culture and lifestyle to the other.

Just as the people I interviewed described finding independence, human kindness and fulfillment in their stint in the countryside, I felt echoes of their experience in my time in Cuba. Although I cannot truly compare my few weeks in Havana (with a phone line to home), to their many months in the countryside, I was also living in a very different place—with more limited comforts, hygiene and diet than I was used to—and finding that strangers were warm and welcoming and that those new found relationships were what made the experience life changing. The experiences of the brigadistas and my own experience also made me acutely aware of the power of education beyond the classroom.

To learn more about High Tech High internships visit: http://www.hightechhigh.org/internships

An eleventh grade student acts as a "reading buddy" for a second grader as she writes and publishes an original novella for him.

Exhibiting Student Writing

Randy Scherer
High Tech High Media Arts

Exhibitions of student learning, with their many projects, activities, and associated banter, can take on the atmosphere of a science fair or a grand opening at an art gallery. A student film festival, with its show schedule and question and answer time with directors, might only differ from a professional film festival in location and subtleties such as the number of limos in the parking lot. But to showcase the written word, we need an environment different from a typical project exhibition.

Professional writers rarely exhibit their work in large public gatherings where they compete with other simultaneous exhibitors for an audience's attention. However, every day of the week, writers exhibit their work in books, newspapers, magazines, and so on. Traditional publishing, such as books or magazines, offers a solution to the problem of exhibiting writing because it presents the students' written work in a natural and authentic setting. Just as the theater setting lends authenticity to a student film festival, publication does the same for student writing.

Exhibitions that display published writing projects are intentionally devised to give the audience both short- and long-term experiences. On the night of the exhibition, it is okay if the audience has a cursory interaction with the material. Let them thumb through the books and focus on the clean layouts, cool cover design, or outstanding

photography. In the hustle and bustle of exhibition night, I don't expect everyone to stop and read an article that took months of daily work to complete. However, long after exhibition, when my students and I see the class's original books on teachers' desks, on shelves around the school, in backpacks year after year, we know that their exhibition continues, as it does in the world of professional writing.

While the quest for an authentic exhibition may have led me to embrace student publishing, the process has led me to realize that student publications provide a particularly effective leverage point for generating high quality writing.

Concerts, Not Pancakes

In strategizing ways to introduce my classes to the fundamental elements of writing, I was inspired by the columnist and professor Stanley Fish, who described a system that he referred to as "the 'Karate Kid' method of teaching writing." In the Karate Kid method, students learn highly stylized motions, just as Daniel-san famously did in the movie—wax on, wax off, paint the fence, and so on. The movie may be fictional, but the point is true. Daniel's mastery of individually structured movements could be transferred to a different, dynamic context.

The same is true for writing. Rather than teach students that their native written language needs to be fixed, I introduce them to structures that exist in the world of the professionally written word. Rather than ask students to memorize a million grammatical rules, and then have them fear breaking them, I ask them to model their work on specific patterns used in professional publications.

Here is one example of the Karate Kid method I learned from Roy Peter Clark's podcast, "Writing Tools." In my class, we call this one "Make Meaning Early." When a writer uses this tip, he starts the sentence with the most important noun, the verb next, and lets the rest of the sentence follow. Like this: "I wrote this article." It's so easy that every student can bring his or her own ideas and content to the form, and quickly we have a classroom full of students writing sentences. Even better, I ask them to go through a highly regarded publication like The New Yorker and find sentences that "make meaning early." Students are often surprised, and then satisfied, to see sentence after sentence in a highly respected magazine structured so simply—noun, verb, object.

The most popular writing tip in my class is called "Concerts, not Pancakes." I thought of this one while listening to a comedian comment that pancakes start out so good—full of sugar in the syrup, delicious fat in the butter, and piled gloriously high on your plate—but pancakes

end up as a nauseating mess of doughy-syrup-mush. And, in my case, the syrup always works its way up the handle of my fork, onto my forearm and into my beard. Gross! As I listened (and laughed), I thought, "That sounds like a lot of the writing I've seen. It starts out so good...but what happens?"

In "Concerts, not Pancakes," students learn that good writing should be like a good concert. In a good concert, the band always starts off with a powerful song that gets the crowd on their feet. They close the show with their big hit. If the band has anything new to try out, or anything that needs support, it goes in the middle. The idea is that a band gives a great concert by strategically sequencing its songs to achieve maximum effect. Great sentences are the same, as are great paragraphs, great articles and great books—professional writers order words to enhance their power.

Students are drawn to these writing tips because they are simple and effective. Those with previous success in Humanities are challenged to pick the "best" tip for the assignment, or to write a complicated idea simply. English language learners can quickly begin writing in Standard English through a few key tips. The writing tips also transition students from seeing editing as a teacher-centered act of approval to an empowering activity in which they know the steps.

The writing tips have a second, almost hidden, feature revealed later in the semester: they are not focused on the perspective of the writer. Instead, they emphasize the reader. They embody the important lesson that a writer's job is to create an experience for a reader. Potential readers have a lot of other things they could do with their time besides read whatever you or I wrote. Great writers make the printed word important to an individual person, draw him or her into a specific world, and then send the reader back to reality but with new thoughts, ideas and perspectives. How do they do this? As Kurt Vonnegut once explained, by manipulating a code made up of "twenty-six phonetic symbols, ten numerals, and about eight punctuation marks." The writing tips, then, function as guidelines to use this code to create an experience for someone else. Through this code, the writer triggers visions and questions, and offers access to the mind of another person. Through this process the writer influences someone he or she has never met, maybe someone who is alive long after that writer died. Students rightly find this idea inspirational.

Writing In and Beyond the Classroom

I went to "good" schools as a kid, but I learned a lot more about writing outside of the classroom than I ever did in it. Truthfully, I

barely remember a lot of what happened in my high school English classes (I hope none of my old teachers are reading this!). That's even true for some of my college classes. However, in both high school and college, I was an editor and writer for the school newspapers, which demanded that I read and write beyond the confines of class.

The school newspaper was rewarding in a way that I had never experienced in a traditional class. As an editor, I developed ideas for stories, assigned them to reporters and photographers, worked with layout artists and graphic designers, and did any or all of these jobs as needed. The best part was the "exhibition"—in high school the newspaper came out once a month; in college, we published twice a week. Each time, the entire newspaper staff anxiously awaited the response.

Once, I met an alumnus from my college several years after graduation, at a dinner at my house. We had never met before, so we chatted about common experiences from college. In our conversation, he unknowingly quoted a joke that I had written in the school newspaper almost a decade earlier. I thought he was playing a joke on me—surely he must have known the connection. But he didn't. I pulled the copy of the old newspaper from my files and we stared incredulously at the coincidence. I was dumbfounded that he had read my article, found it funny, and had apparently been using the joke for years, until it finally came full circle and he told the joke back to me, the original author. Now that is a successful exhibition!

Looking back through those files brought another idea into focus—students save only what they care about. I have saved only a select few of the countless essays I wrote at any point in my academic career. After all of those humanities and social science classes, and all of the essays and research papers, I simply have no idea where most went. However, I do have a binder full of clippings from the local community newspaper for which I was a freelance reporter in high school, and boxes of high school and college newspapers that published my work. Soon, some of those papers will be twenty years old, yet I have been careful to move them with me to quite a few different states and across the country.

Publication as Leverage

Traditional newspapers may be dying in their print form as news moves to the Internet, but I believe that we should not allow student publications to die—or think web-based projects are effective replacements.

First, the death of professional print media may be somewhat overstated. True, the Internet is a much better place to find up-to-the-minute news than a printed newspaper. But for thoughtful analysis, magazines such as the *New Yorker* or the *Economist* are quite successful—both continue to boast strikingly high subscription rates. Amazon has sold millions of Kindles, but soaring e-book sales represent only one vibrant part of a larger publishing industry that generates $24 billion annually in America. Teachers who are quick to believe that print media are dying may simply be sensitive to a few changes—particularly the decline in educational book sales, which is a product of shrinking public budgets.

Second, when it comes to the in-depth exploration of ideas, books hold a place of respect for students. The permanent, physical nature of a published product provides a feeling of satisfaction not attainable on the Internet. Websites that can be edited up to (and after) the night of a project exhibition have not motivated my students the same way publishing has. My students say it to each other while we work, in tones ranging from questioning to celebratory: "This is going to be printed in the book?" or "This is going to be printed in the book!" The permanence of the product informs the degree to which they take the project seriously.

Publications provide a coherent project that focuses students around practicing the behaviors used by professionals, which is a fundamental concept of project-based learning. Biology students must engage in the behaviors of biologists; art students must engage in the behaviors of professional artists; and so on. For humanities, this means trying on the identity of writer and editor—but a professional writer and editor, one who publishes his or her work for an authentic audience.

Part of the initiation into the world of writing is moving beyond one's most convenient audience. For nearly all students, their writing is read by a small group of people who are physically close and will discuss the work with them. I believe that this has the unfortunate side effect of allowing students to be loose with their writing, because the final "product" can be a conversation or comment in which they say, "Oh, no, I really meant…" For most students, the audience for their writing is their teacher, or maybe parents and a few friends. No professional writer writes solely for a group like this. While professional writers undoubtedly do include family and friends in their audience, they also write for a large group of people they do not know. This audience will probably never have the chance to sit down with the author and ask, "What did you mean in this part right here?" Instead, the writing has to stand on its own.

This is a fundamental lesson and important conceptual shift in the use

of publishing to leverage high quality writing from students: the writing has to stand on its own. It has to be good enough as is, so a stranger can understand it. This realization is a significant step in engaging students to write for deep content as well as flawless mechanics. Although many of my students have authors they enjoy, not one that I know of has sat with that author and received his or her help in getting through a book. The professional knows this, and writes specifically to engage readers without having to say, "Well, what I really meant was..."

Authentic Standards

In the age of standardized testing, student publications maintain my "lower-case" standards—not State Standards, but professional and personal standards. A publishing teacher is standards-aware, but not Standards-subservient.

In the past two years, under my publishing-centered curriculum, my students' standardized test scores have risen. This is not a large enough sample from which to draw conclusions, but it is not a bad trend. Also, I no longer teach repetitive forms of academic writing, such as the five-paragraph essay. Instead, professional models provide both rich learning experiences and engaging final products.

A better assessment of the value of publishing comes in the form of students' written reflections. Following our most recent publication, some students were critical of themselves, and some were critical of the project. But when I asked how the act of publishing impacted their approach to writing, students universally praised the publishing process as one that motivated them to strive for their best. One student's reflection addressed this theme: "The fact that we were publishing it just makes me more active in my critique of my own writing so I can catch my mistakes or misspelled words or improper grammar. Because I wouldn't want anything published with my name on it if it had mistakes. It just makes it seem sloppy." Another student wrote, "I wanted to make sure that my work was totally professional and the best material possible, especially since I didn't want to let down the family and two scientists that I interviewed and included in my article."

A second theme also emerged: publishing led students to care more about the work of their classmates. In all of my classes' publications, students regularly read, edit, critique and revise many other students' work, day after day, for no additional credit other than the satisfaction that the whole class will have a better final product. I have not seen altruism at this level in any other project in my class. Somehow, buried in the concept of a whole-class publication, is the idea that each individual student benefits when the whole class produces beautiful

work.

After my class's most recent exhibition, student after student commented, "I can't believe we really published a book." They were proud of their newfound status as published authors. They opened the books slowly, careful not to crease the pages. Their parents clutched copies close to their chests. Most importantly, others got the books, too. And, as we read each other's work, and slowly hear back from teachers and parents and people they do not know, the students have taken an important step: they are writers who publish.

To learn more about student publishing and other projects, visit Randy Scherer's digital portfolio at http://dp.hightechhigh.org/~rscherer

Logs from San Diego Bay

Tom Fehrenbacher
Gary and Jeri-Ann Jacobs High Tech High

These words are written in memory of Jay Vavra, my former teaching partner, who passed away in the fall of 2014. From the start, Jay expressed an interest in the relevance of my subject, the humanities, for his subject, biology. His eagerness to find connections resulted, not only in a prodigious amount of student work, but also in a journey for me of great personal and professional growth.

It all came about innocently enough. Mindful of High Tech High's commitment to integrated curriculum, Jay and I focused on a nearby body of water known as the Boat Channel. The Boat Channel was easily accessible, held possibilities for both of us, and seemed a good place to get the kids outdoors. Jay's transect studies of life forms along the Channel's banks went smoothly. However, on the humanities side, deciding just what role humans did have in nature and whether that role is "natural" proved provocative. Over the next ten years, many more of biology's provocative questions would arrive in my classroom.

By the end of our first year together, our students produced a field guide, *The Two Sides of the Boat Channel*. This first book contained student descriptions of the Boat Channel's wildlife, results of transect studies, nature reflections, and poems. We used the book to apply for grants, which allowed us to extend our study to the San Diego Bay itself. Our interdisciplinary project would turn out to have a life of its own, resulting in a series of field guides over the years: *Perspectives of the San Diego Bay*; *San Diego Bay: A Story of Exploitation and Restoration*; *San Diego Bay: A Call for Conservation*; *Biomimicry: Respecting Nature through Design*; and *Invasive Species: The Unknown War*.

Nature Deficit Syndrome

For the second field guide, *Perspectives*, we travelled by bus to the Bay's corners and coves. As the kids got off the bus, we noticed that some were in a state of bewilderment. Many stayed on the sidewalks away from water; they didn't feel home in all the sunlight and air. They didn't want to get their feet wet.

In talking with Jay about these students, I found out their reticence has a name: *nature deficit syndrome*. The syndrome occurs when we live shut off in rooms, breathing conditioned air, in front of screens and sleeping to the on/off switch of artificial light. By doing so, without even knowing it, our view of the outdoors shifts. We no longer feel we are a part of nature. Instead, we come to think we are separate from it and have dominion over it. Jay and his fellow biologists warn us this isn't true.

Nature deficit syndrome makes us oblivious to the actual state of the environment. And, insidiously, it makes us oblivious to its very existence. Teachers working alone in their separate disciplines are not likely to hear from the biologist in the building. Nature deficit syndrome is rarely heard of or talked about in education. For all the changes taking place in our environment, our indoor life keeps us dangerously blind.

For Jay and me this meant getting our students outside. It meant more

field trips, not only to the urban parts of the Bay, but further south to the Chula Vista Nature Center where we could still see the Bay's surroundings untouched. We did more experiments in the field. At docks assigned to Jay by the Port Authority we dropped thick ropes into the water, later to pull up clusters of life, cataloguing the biodiversity. We compared biodiversity across the Bay. We accompanied Fish and Wildlife experts, watching as thousands of native white sea bass were released back into the Bay. The students completed illuminated journals, sketching, describing and looking at the role humanity played in the landscape. We wrote poems about our observations.

Closer to school, Jay took early morning dives to collect sea urchins for the lab. He kept two locally found octopi in the class's aquarium; we named them and celebrated their birthdays. We had beginning and end-of-year team celebrations at South Mission Beach, swimming, eating and playing outdoors. We went to a plant nursery and bought native plants. We loaded them on to the bus and filled the bus interior with their mysterious fragrance. Once back, we planted a garden around the school.

Shifting Baselines

Our next field guide, *A Story of Exploitation and Restoration*, brought other lessons. Jay, who was fond of the annual festival at Cabrillo National Monument, attending with our students and setting up a booth there, invited me to see the reenactment of Juan Cabrillo's arrival at the tip of Point Loma in 1542. Cabrillo was the first European to visit the San Diego Bay, and his landing is celebrated to this day. Given our topic, I had to go.

As I watched the actors' reenactment, debarking from their boat and stepping ashore, dressed in costumes, pantaloons for sailors, a black robe for the priest, and Spanish conquistador armor for Cabrillo, I wondered what the Bay would have looked like for them. From field trips, classroom maps, drawings, depictions and descriptions of the Bay over time, we found a different story. Things were not the same now as in Cabrillo's time. The very geography of the Bay had changed.

Since Cabrillo, the Bay has been dredged, cleared of eelgrass, and deep shipping lanes carved. Using the dredged materials, islands, causeways, and flatlands were built over mudflats and marshlands. The course of the San Diego River, which used to meander around the Presidio and sometimes toward Point Loma's tip, was blocked. High Tech High's nearby Boat Channel is all that remains of the former river's route.

The students and I came to realize that our school is located on top of

land that once was along the banks of that river. When we expressed our surprise, Jay told us about shifting baselines, an idea from biology that points out the environment before us hasn't always been that way. Shifting baselines usually go unnoticed, the shifts happening slowly over great courses of time. Biologists are interested when a baseline shifts quickly; they look for the reason behind such shifts. San Diego Bay's rapid shift in baseline would come to interest us.

Development or Exploitation

What could account for such a completely different Bay in such a brief time? This question brought humanities fully into the picture, as we looked to history to find an answer. We discovered that as hunter-gatherers, humans foraged across the globe for millions of years. Then, occurring relatively recently, some 12,000 years ago, we began to stay in one place. We were able to do this by digging up the soil and planting food. Known as the Agricultural Revolution, it would be the first in an accelerating series of significant technology-induced social revolutions.

We found the rise of agriculture encouraged the growth of patrilineal societies, specialized our labor, and required organized aggression. To this day, our militaries protect the crops, the village, and the homeland. When Cabrillo landed on Point Loma, a hunter-gatherer people found themselves under a series of invasions by societies with militaries and more technology. The outcome was predetermined; San Diego's native people, the Kumeyaay, were placed on reservations.

With the Kumeyaay displaced and the rule of Spain and Mexico replaced by the Americans, the San Diego Bay began its rapid shift. We already knew that it took more than shovels and wheel barrows to reshape our Bay. Old photos revealed dredgers, barges, and unloaders at work. History told us that machines made it happen. The world's next great change in technology, the Industrial Revolution, would not only transform the Bay, but everything from the way we grow our food, make our clothes and build our houses.

From history, students saw both the agricultural and industrial revolutions' significant impacts upon the environment. We found that our tools allowed us to do what we wanted without restraint. From marketing brochures, textbooks, and historical recounts, we witnessed the emergence of a language to cast our actions in a positive light. We "developed" the land, took advantage of "resources," engaged in "progress," and completed "projects." Our class discussions concluded that more mindful calls for caution, care, and conservation came off as uninformed and unprogressive.

Sustainability and the Blue Marble

In the next field guide, *A Call for Conservation*, we asked why the terminology of development was all so positive, but its consequences not necessarily so. We asked why some interests can start out "developing resources," only to have others point out they are actually "exploiting nature."

This question brought us face-to-face with conflicting perspectives on the environment. It also brought us face-to-face with a great deal of information on the subject. New technologies were changing the speed and ease of communication and information processing. Data could be gathered, crunched, and made available from a laptop in the field. The environment, itself, was under discussion; the hive was humming and we had become a part of it. Welcome to the next technological revolution, the one going on right now, the Information Age.

For Jay, this meant students used GPS to track pollution, collected biodiversity data and distilled it in statistics programs, conducted zip code-dependent mosquito experiments, and recorded interviews with scholars and leaders in environment studies and the conservation movement. We produced and published our student findings within a year, shortening the publication delay in our last field guide, *Invasive Species: The Unknown War*, through direct electronic publication.

In humanities, we found the Information Age settled the argument about our net effect upon the environment. We are not developing, we

are exploiting. There is some positive news: While climate change is real and produced by man, with enough global awareness and subsequent action, we can slow and reverse course over time. Scientists, long participants in the Information Age, have been sounding the alarm for years.

In 1972, Apollo 17 sent a photograph from outer space known as the Blue Marble. It shows a beautiful and fragile globe hanging in vast space. We realize from looking at this Blue Marble, that this is it. Except for sunlight pouring in, our lives are sustained within a closed and fragile system.

In producing *Biomimicry*, we wrote about how evolution works in this closed system through a process that inspires and sustains life. As a product of evolution, humans are bound by its rules. We cannot expect our actions to go unnoticed. When a species does ignore them, as Jay put it, nature does notice. When an invasive species takes over an entire ecosystem, killing off the other life, the biologists call it "boom and bust."

In completing the field guide Invasive Species students wrote about "boom and bust" and concluded that human tool use had extinguished a significant amount of life—that tool use enabled our own invasiveness. So, we decided to ask some questions regarding our survival in terms of tools. How could we better use our tools? What are nature's design principles for operating in a closed system?

Students found something of survival guide by looking at how evolution goes about sustaining life on Earth. We found the tenets of sustainability: all energy is solar, all waste is food, and all life is diverse. The tenets of sustainability tell us exactly how life has always operated on this planet, and how it will continue to, with or without us.

When we fail to respect nature through our designs or actions, we run right into what is known as the tragedy of the commons. We cannot as individuals, corporation, or nations exploit or pollute what is held in common, namely the land, the oceans, or the air and still be sustainable. A cost benefit analysis in terms of each sustainability tenet is essential for every step we take. There is no such thing as excluding what business terms an "externality" in the final equation.

The Problem with Subject Matter Specificity

Subject matter specificity, in schools and in the professions, lets us off the hook when it comes to the environment. This problem can be found even in project-driven schools when students aren't asked to consider the connections, the cost or consequence, or the impact of their project on the environment. Later in life the myopia will continue, when specialists in the sciences and technology go ahead unreflectively with industrial projects masquerading as progress. Trained to be experts in only one field, responsible for only a limited perspective, specialists feel little to no professional compulsion to look for connections or to consider the consequences of their projects.

In working with Jay, I found out that addressing climate change requires contributions not only from those who study nature, but also from those who study humanity. After all, WE are the species causing it. In humanities, with climate change a settled fact, our Socratic Seminars focused more and more upon the nature of humanity itself. We asked an essential question about climate change: "How can we, as a species, while knowing this is happening, leave it largely unaddressed?" If we had not done so, I could not have looked Jay in the eye. Had humanities students not engaged in relevant social study, neither Jay nor I would have found their work authentic. And, by taking up social analysis, students found that our history, our literature, and the best in our culture can tell us a great deal about life, about living simply, and about sustainability.

So, while my work with Jay began through an interdisciplinary expectation, it led to an interdisciplinary responsibility. Over the years, we came together to negotiate the year's topic, the field guide table of contents and chapter content. With our students we looked for connections, sought relevance and asked questions no matter where

they led. In the field guide's uncharted territory, our students found a place to raise their own questions and express their own ideas. We learned a lot from them. What started as a simple look at the local Boat Channel turned into a study of the Bay's ecological history, which then became a consideration of the environment itself. In some sense, there was nothing planned about it.

Jay was fond of referring to our partnership as akin to that of the scientist, Ed Ricketts, and the novelist, John Steinbeck, who worked together on *The Log from the Sea of Cortez*. The comparison to Steinbeck would give any humanities teacher pause, but Jay felt it held truth, perhaps enjoying the reference all the more for the reservation it raised in me. Jay did have a point about the importance of interdisciplinary work, though. None of these ideas and none of the student work and awareness found in our field guides could have happened without our academic partnership, or without our personal relationship. I have him to thank for this.

The author (right), with his long-time teaching partner, Jay Vavra.

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