

On Common Ground[®]

Strengthening Teaching through School-University Partnership

YALE-NEW HAVEN TEACHERS INSTITUTE[®]

NUMBER 13, SPRING 2009



JASPER JOHNS, *UNTITLED (CATENARY SERIES)*, 2001

Learning Through Vision and Re-Vision

By Thomas R. Whitaker

At the heart of every Teachers Institute is a process of "learning through vision and re-vision." That is why we've placed on our cover the most vivid of the thirteen pieces in Jasper Johns' "Catenary Series," on exhibit this past winter at the Museum of Modern Art in New York. Its mixed media and its various images are certainly hard to hold in a single thought. Composed in acrylic over aquatint and etching, it recapitulates the recurrent images of every other piece in the series and incorporates a number of glances at Johns' earlier work. Johns' subject has always been "perception," and this piece corresponds to the "learning through

vision and re-vision" to which this number of *On Common Ground* is dedicated.

Consider the Museum's account of the artist at work: "Johns began this series with leftover, rejected sheets from two editions of prints. He spent a month cutting and pasting elements and painting and drawing over them to come up with these thirteen works. They offer an almost musical sense of transition in tone yet remain linked thematically." In rather similar ways each Teachers Institute, as it links a school district and an institution of higher education, discovers and enacts the meaning of the "Understandings and Procedures"; seminar leaders, as they revise their understanding of content, pedagogy, and collegiality,

develop seminars that are neither university classes nor professional development programs; Fellows, as they re-vision their classroom work, write adventurous curriculum units; and the League itself, as it draws on the experience of the Yale-New Haven Teachers Institute and the National Demonstration Project, expands through a collaborative diversity of communities, institutions, and teachers.

The images in Jasper Johns' piece also have resonances for us. That American flag in the upper left-hand corner boldly echoes his well-known "Three Flags," which was our cover image on the very first issue of *On Common Ground*. It keeps before us

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Whitaker: Learning Through Vision and Re-Vision

(continued from front cover)

the intended scope of the Yale National Initiative and its continuing efforts — as most recently detailed in #12 of *On Common Ground* — to ensure that Teachers Institutes in every state may receive some Federal support. The sun-like nebula against a blue sky adjacent to a nineteenth-century illustration of a family in paler blue may suggest the double emphasis on Sciences and Humanities that is central to any Institute. The colorful bits of a harlequin costume with echoes of Picasso, the little stick-figures, and the dribbles of purple are tributes to an energy of creative play that is illustrated in one essay after another in these pages. And the "catenary" itself, which we see dipping and rising from the lower left-hand corner? That shape, made by gravity's pull upon a chain or string suspended between two anchoring positions, leads the eye across pictorial space rather like the bridge images that we have often used as metaphors for the collaborative work of Teachers Institutes. The essays from Martin Gehner's national seminar on "Bridges: The Art and Science for Community Connections" will in fact allude to a Spanish architect, engineer, and artist — Santiago Calatrava — who has made use of the catenary in his astonishing designs.

But first we must glance at the "learning through vision and re-vision" of the Yale National Initiative, as it moves to bring into the League yet more Teachers Institutes. This past July, on the inauguration of the Intensive Session, James Vivian welcomed to Yale and New Haven seventy-four National Fellows and twenty-six college and university faculty members from nine of the communities participating in the National Initiative — as well as the Institute directors from Pittsburgh, Houston, and Philadelphia. At the fourth Annual Conference in October he welcomed the returning National Fellows as well as a range of district and university colleagues from Atlanta, Charlotte,

Chicago, DeKalb County, Houston, New Castle County, New Haven, Philadelphia, Pittsburgh, Richmond, San Francisco, and Santa Fe. The Conference panels, discussions, and reports included "From National Seminars to Local Classrooms," "The Teachers Institute Approach," and "Steps and Strategies in Planning a New Teachers Institute." There were also group sessions on planning for seminars and planning or strengthening a Teachers Institute.

This number of *On Common Ground* focuses on such continuing teaching and learning. We include essays on "teaching" and on "planning," followed by statements from seminar leaders and Fellows that reflect upon the national seminars, the writing of curriculum units, and classroom teaching. And we include images that will provide some vivid further comment.

Essays and Images

We begin with a condensed version of a report of research by Rogers M. Smith that documents the effectiveness of the Teachers Institute approach in fostering teacher quality. With "Strengthening Teaching" we have placed two images that may remind us of states of accomplishment at earlier moments in the history of teaching in America. One is "Country School" (1871) by Winslow Homer, a great artist best known for his landscapes who also had a strong interest in elementary education. The other is one of five panels from Honoré Sharrer's "Tribute to the American Working People" — a remarkable altarpiece triptych in idealized realism with a cap-clad worker in the central panel — which here depicts a mid-twentieth-century schoolroom.

The piece by Langdon L. Hammer, "Teaching Voice," then invites us to hear the "voice" in what we read and what we write. With it we have placed "The Gift of Reading," one of several paintings by Edward Gonzalez that dramatize reading as an interpersonal and community process. (Fittingly enough, a new public

school in Albuquerque now bears his name.) The perspectives opened up by this essay will be further developed in Langdon Hammer's two other contributions to this number: "Remarks on Writing Curriculum Units" and "Listening for Voices."

The following piece by Peter Conn, "Teaching: The Key to Educational Change," offers an account of the emergence of the Teachers Institute of Philadelphia as an active force for change. With this essay we have placed Winslow Homer's subtly beautiful watercolor "Blackboard," which continues the theme of elementary education found in many of his oils. The geometrical marks on the teacher's blackboard belong to a method of drawing instruction from the 1870s, when drawing was understood to have a practical application in industrial design, but the teacher herself suggests in face and stance the deep presence from which creative action can emerge.

We will say more about the planning of a San Francisco Teachers Institute in our editorial introduction to these pieces. Here it is enough to note a major theme that runs through Dongshil Kim's comments from the San Francisco United School District, Linda Buckley's from San Francisco State University, Peter Novak's from the University of San Francisco, and Lisa Ernst's story of the planning as experienced by an elementary school teacher. All four emphasize a commitment to "an ethic of social justice" that has been implicit in the Teachers Institute approach from its inauguration more than thirty years ago in New Haven, but that attains a fresh explicitness in these words from San Francisco. With these essays we include three celebratory and instructive images that evoke aspects of that metropolitan area: a lithograph of "Treasure Island from the Golden Gate"; a quilt by Faith Ringgold called "Double Dutch on the Golden Gate"; and "Urban Freeways" by that long-time San Francisco painter, Wayne Thiebaud.

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Strengthening Teaching

By Rogers M. Smith

Editor's Note: This piece is a condensed version of Rogers Smith's full report To Strengthen Teaching: An Evaluation of Teachers Institute Experiences, which is being published this spring by the Yale National Initiative.

For thirty years, the Yale-New Haven Teachers Institute has been developing a unique model for improving teacher quality. This approach has now been tested and substantiated by a National Demonstration Project and the establishment of continuing Teachers Institutes in Pittsburgh, Houston, and Philadelphia. The Yale National Initiative, which now offers annual seminars for teachers from eleven participating communities in ten states, is encouraging and facilitating the establishment of yet more Teachers Institutes across the United States. As this summary of recent research will indicate, Teachers Institutes significantly strengthen teachers in all five of the major dimensions of teacher quality. They also include all seven elements now recognized to be crucial in successful professional development programs.

In recent years, educational researchers have converged on the conclusion that the best way to help students learn is to improve *teacher quality*. By common consensus, quality teachers are:

1. Teachers who really *know their subjects*;
2. Teachers with *good basic writing, math, and oral presentation skills*;
3. Teachers with *high expectations of their students*;
4. Teachers who are *enthusiastic about teaching*; and
5. Teachers who *can motivate all students to learn*.

Researchers also agree that most traditional forms of professional development fail to foster teacher quality along these

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WINSLOW HOMER, *THE COUNTRY SCHOOL*, 1871

five key dimensions. They are limited in duration, content, and active learning, leaving teachers uninformed and uninspired. But high quality programs exist, and researchers are gaining knowledge of their key characteristics. Recent studies stress that these programs feature:

1. A focus on *content* and on *pedagogy linked to content*;
2. *Active teacher learning*;
3. *Teacher leadership*;
4. *Extended duration*;
5. *Collective participation* by teachers from the same school, grade, or subject;
6. *Alignment* with state and local standards;
7. *Ongoing evaluation*.

As researchers also suggest, districts may face a choice "between serving larger numbers of teachers with less focused and sustained professional development or providing higher quality activities for fewer teachers," since "good professional development requires substantial resources" in terms of time, expertise, and dollars. The Gates Foundation recently stated that an "effective professional learning community" requires "teachers who work together to meet shared challenges and improve their skills. They need ongoing, job-embedded professional development." These needs cannot be met through forms of professional development

that feature brief workshops for passive audiences of large numbers of teachers.

How do Teachers Institutes provide these necessary elements of teacher quality and professional development? At the heart of the Teachers Institute approach are partnerships between institutions of higher education and public schools. Teachers Institutes offer five to seven seminars each year meeting weekly over roughly three months, led by university or college faculty members, on topics that teachers have selected to increase their mastery of what they teach. Institute programs focus on *content and pedagogy linked to that content*; *active teacher learning*; *extensive teacher leadership*; seminars of *substantial duration*; and the development of curriculum units aligned to *state and local standards*. And, to varying degrees, they also involve *continuing evaluations* and opportunities for *collective participation*. In Institute seminars teachers gain more sophisticated content *knowledge* and also *enhance their skills* as they prepare curriculum units adapting the themes of their seminars for their students. Most teachers are *enthusiastic* about the seminars and the opportunity to teach the units they have written. They *expect more* of the students taking them. And they *succeed in motivating their students* to learn at higher levels.



HONORE D. SHARRER, *TRIBUTE TO THE AMERICAN WORKING PEOPLE*, 1951

The Institutes are especially well-suited to ensure that teachers do not learn advanced content in isolation from attention to how it can be conveyed effectively, and that they do not passively receive content from curriculum prepared by others. Instead, they research and write curriculum themselves, challenged and aided by their peers to ensure that it is exciting for students and teachers alike. The Institute approach does embrace the alternative of "higher quality activities for fewer teachers." Each Institute offers seminars for roughly 50 to 80 teachers per year. But through dissemination of their units, Institutes can have an impact on far more teachers than they enroll; and over time, significant percentages of teachers in particular schools and regions can be direct participants. In New Haven, nearly 600 teachers had been Institute seminar participants by 2005, including 32% of the teachers then at work in New Haven high schools, 25% of the middle-school teachers, and 14% of the elementary-school teachers.

Annual surveys in the last six years of over 1200 teacher participants at all four existing Institutes in New Haven, Pittsburgh, Houston, and Philadelphia

show that teachers *chose to participate* in Institute seminars out of desires to improve themselves in precisely the areas that are vital to teacher quality. When asked to choose among twelve reasons for participation in the seminars, the teachers at every site listed the "opportunity to develop materials to motivate my students" as the leading reason. Teachers drawn from all grade levels and all subject areas participated out of desires to obtain materials *to motivate their students* (93.2% to 94.7%), to obtain curriculum suited to their needs (84.6% to 89.3% at the four sites), to increase their mastery of their subjects (85.5% to 90.5%), and to exercise intellectual independence (85% to 91.6%). The data on unit use also show that after teaching their Institute units two-thirds of all participants rated them superior to all other curriculum they had used. *Roughly 60% of all participants rated student motivation and attention as higher during these units, producing substantially greater content mastery.*

The surveys also revealed that, in contrast to most professional development programs, there are no widely shared criti-

cisms of Institute seminars. Instead, *over 96% of participating teachers praised the overall program, rating it "moderately" or "greatly" useful*, in a remarkably consistent range running from 96.5% in Houston to 100% in Philadelphia. Only 3% of the respondents said the program was useful only to a small extent. Fellows also overwhelmingly "agreed" or "strongly agreed" that the seminars provided them with professionally useful new *knowledge* and that the seminars raised their *expectations of their students*. These data strongly support the conclusion that virtually all teachers who complete Institute seminars feel substantially strengthened in their mastery of content knowledge and their professional skills more generally, while they also develop higher standards for what their students can achieve.

Strong testimonials over the years by teachers, university faculty members, and university and public school administrators also indicate that the Institute approach generates significant corollary benefits that are not easily grasped through survey responses and not always visible in a relatively short time period. Perhaps the most important of these include:

- The development of *teacher leadership* capabilities, as many teachers serve as Teacher Representatives or Seminar Coordinators;
- The development of *teacher collaborations and teacher networks*, as teachers gain knowledge of who their fellow teachers in other subjects, at other grade levels, and in other schools are, and what they are doing in their classrooms;
- The development of *university faculty who see themselves as partners in improving public education*, rather than passive, often critical recipients of its graduates;
- The development of *university-public school institutional partnerships* in ways that promote respect and strengthen education in both settings.

(continued on back cover)

Teaching Voice

By Langdon L. Hammer

Can you hear me? This is something people say when they step up to a podium, and we in the audience nod assent or call out "No! Louder!" from the back row. It is an honest request for information, but it also has a rhetorical purpose: the question allows the speaker to put off the business of speaking for a moment and create the bond with her or his listeners that is essential to effective speaking. Every speaker needs to be heard.

It is the same thing for the writer. The writer, however, is not in the room with us, and there is no point in posing a question for us to answer. So the writer has to have other ways of beginning, other rituals of contact. "I am an invisible man," Ralph Ellison begins his novel narrated in the first person, *Invisible Man*. Although we can't see him — we can never see the writer we are reading — we hear him, "a disembodied voice," as Ellison puts it, speaking to us in the present tense across time and space.

There is no mystery more profound in literature than the power of language like Ellison's to create a speaker, who, while we are reading, is present to us as someone we hear as clearly — no, more clearly, more intimately — than someone speaking to us from a podium. But voice is not only a property of great literature. It is present in any writing that compels our attention, reflection, and response.

Two years ago in the Yale-New Haven Teachers Institute and last year in the National Initiative, I led seminars on voice in American literature. In both seminars, the Fellows were excited by the topic and, I sensed, frustrated by it. Excited, because "voice" points to the living experience of literature that tends to be minimized or put aside in the "teaching to the test" they do much of the time in the classroom; and frustrated, because "voice" is hard to pin down in a definition and teach, and harder still to test.

What is it we hear when we hear a "voice"? There is a lot that can be said in

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EDWARD GONZALES, *THE GIFT OF READING*, 2008

reply to this. I am going to give a single simple answer, which comes in two parts. A voice is not a thing but an action that establishes a relationship. A voice is something that must be heard, and it is not a voice until it is heard. Built into any voice, and constituting it as a voice rather than as mere information or noise, is an address, explicit or implicit, to an audience.

We speak as teachers of trying to get students to discover their own voices. The assumption is that, in the silence of their heads or hearts, there is a voice, soliloquizing, that they need to learn to get down on paper: an essentially private or personal voice. This may be the case, but in order to

discover it, students need to learn to hear it. They need to learn to be auditors for what they have to say, which means learning how they sound to someone else; and in the process they need to recognize that they — we, all of us — speak differently to different people. This is a basic goal for anyone teaching writing at any level: to help students learn to project an audience for their words, and to hear what they write. The goal is an impossible but necessary one: to learn to speak and listen at the same time. (Practically, composition theorists tell us, these activities can be sorted out into the stages of draft and revision, the first one focused on getting the words out, the sec-

ond on shaping them for an audience. The first is called "writer-based" prose, the second "reader-based" prose.)

If the audience is one half of the equation created by voice (the "you," implied or explicit), the other half is the resonance, the particularity of the voice, the sound of the "I." What makes our words resonate? In the case of acoustic voice, the body is key. The resonance of a musical instrument results from the sound of air moving in a crafted object which has a specific history, certain dimensions, and particular material properties. Our voices are resonant in just the same way. Acoustic voice is embodied speech, words that resound in the instrument of our bodies. It conveys an astonishing amount of facts about us: our age, weight, race, gender, and behind these, the sound of a region, a family, an education. (All of this and more we begin to infer and guess at, almost instantaneously, when we pick up the phone and hear a stranger's voice.)

Above all, though, embodied speech conveys feeling. Feeling is signified through

physical gesture and facial expression, as well as vocal pitch, tone, and volume. When we put that together with the idea of audience, then we come closer to a definition: voice communicates not only information but feeling; and the feeling communicated includes how the speaker feels about communicating it to a particular audience.

But voice on the page is precisely, as Ellison terms it, "disembodied." When we talk about a writer's voice, we are using a metaphor. We don't actually "hear" Ellison's narrator. Rather, we imagine his voice as we read; we hear him in our mind's ear. We are doing something complementary to what we ask of student writers. We want students to listen to themselves while writing and to put themselves in the place of their readers; and we as readers, when we read skillfully and expressively, give voice to what we read and put ourselves in the position of the writer.

This is one reason that reading aloud, by teachers and students both, is an essential

classroom activity for every level of the school system. To read a text aloud, with the feeling that comes with understanding, is an act of interpretation. It requires the reader to take in the writer and speak for him or her, while enabling that writer to speak for the reader. A complicated exchange takes place that depends on a speaker giving voice to a text, and vice versa. When we read aloud, the writer is being heard.

"Voice" is tone; "voice" is style. So it is tempting to think of "voice" as the last thing to be taught, as an ineffable effect that writers graduate to when they have mastered the more easily assessable nuts and bolts of composition. And no doubt that is the case: it is the goal toward which an education in reading and writing aspires. But it is also where that education starts. "Voice" is the beginning of writing and reading, their premise and foundation. It is the first thing a speaker must establish up there at the podium: "Can you hear me?" "Yes, we can," we answer, and the speaker can go on.

Whitaker: Vision and Re-Vision

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As we turn to national seminars and curriculum units, we begin with Langdon Hammer's "Remarks on Writing Curriculum Units," which expands on one aspect of "Teaching Voice." With it we have placed Thomas Eakins' penetrating study of 1882, "The Writing Master" — in fact a portrait of his father, who taught the old style of copperplate calligraphy in the schools of Philadelphia. For the seminar on "The Theory and Practice of Democracy" we have used two quite different images. With Ian Shapiro's "Teaching the Basic Dilemmas" we have placed an image of voting by African Americans from Jacob Lawrence's "Migration Series." And with Jesse Senechal's piece on "The Ethic of Risk in Teaching" we have placed Lewis Hine's photograph, "Icarus, Empire State

Building" — a Depression era reminder that, despite the old legend, constructive risks may indeed lead to success.

Martin Gehner's "Building Bridges in a Seminar" is then illustrated by a photograph of "Coalbrookdale Bridge," the very first cast iron bridge. And the essays on curriculum units by Maria Cardalliaguet and Karen Yarnall, which focus on Spanish bridges and organic form, are linked by a photograph of the Puente Lusitania (1991) designed by the Spanish architect and engineer, Santiago Calatrava.

The images relating to the seminar on "American Voices" suggest both personal and community voices that have shaped American history. With Langdon Hammer's "Listening for Voices" and Victoria Deschere's "Finding Voice Through Personal Narrative" we have placed "Listen

Lord: a Prayer" (1927) by Aaron Douglas, a major figure in the Harlem Renaissance and founder of the Art Department in Fisk University. With Bonnee Breese's "Speak Words, Recite Messages" we have placed Carl Van Vechten's photograph of Augusta Savage's sculpture "Lift Every Voice," inspired by James Weldon Johnson's moving hymn and created for the 1939 World's Fair. Two lines from that hymn may still speak for all of us today: "Sing a song full of the faith that the dark past has taught us; sing a song full of the hope that the present has brought us"

The images we have placed with accounts of the seminar on "Estimation" are variously abstract, realistic, and conceptual. For Roger Howe's "Making Estimation Precise" and Brian Bell's "Estimation in
(continued on page 9)

Teaching: The Key to Educational Change

By Peter Conn

Now in its fourth year, the Teachers Institute of Philadelphia (TIP) has emerged as a vital force for educational change, both in the city's public schools and within the University of Pennsylvania faculty. TIP's director, Alan Lee, provides exceptionally able leadership, and has done so from the program's earliest days. Alan is a veteran Philadelphia teacher, which means among other things that he has seen the coming — and the going — of numberless reform projects. "Every five years there is a new wave of reform," Alan has observed in a recent interview with the *Pennsylvania Gazette*, "the new silver bullet, the new reforms which will undo the damages of the previous reforms. And at various times these reforms seem to hint rather darkly that it's the teachers that are the problem." Alan concludes: "Teachers should not be the objects of reforms, they should be the agents." That final sentence contains the core proposition that guides all of us: public school education depends above all on the quality, dedication, and imagination of teachers.

Just about every study of efficacy in the education of children has reached the same conclusion: the key is teaching. The most successful teachers combine a mastery of their subject with a fierce desire to communicate what they know to their students. TIP, like the other Teachers Institutes around the country, works to stimulate and enhance the skills of the teachers who take part. Consequently, TIP is conceived as a partnership, from the initial design of seminar topics, to the conduct of each session, to the development and completion of the curricu-

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lum units. At their best — and teachers have testified that the seminars often achieve their best — the seminars are collegial spaces in which teachers can learn from each other, and can apply the semester's work to their own pedagogical priorities.

TIP came to Penn in the first instance because of the enterprise and enthusiasm of

tially gathered has grown steadily, and now includes some of the university's most senior and accomplished faculty.

Penn, like most other urban universities, is home to a large number of programs that usefully connect the university to the Philadelphia community. Faculty and students from all twelve of the university's schools spend countless hours each year working in dental clinics, hospices, child welfare agencies, schools, homeless shelters, neighbourhood gardens, and community centers. Within this broad array of activities, TIP is making a distinctive contribution, by engaging dozens of K-12 teachers in its program of intensive seminars. Classes are held on the Penn campus, and teachers are given university ID's (which include library privileges) and email accounts. We have not, alas, solved the problem of parking, a non-trivial concern for teachers on a tight schedule in a crowded urban area.

TIP's work proceeds under the auspices of a formal partnership with the School District of Philadelphia, which recognizes the value that TIP adds as a uniquely powerful instrument in teacher development. TIP is funded through a combination of private philanthropy, foundation grants, university indirect support (office space), and an allocation from the School District.

Over these first four years, TIP seminar topics have ranged from immigration history to modern Africa to the science of public health. Nearly one-hundred teachers have participated, and they have designed a kaleidoscope of provocative and professional curriculum units. Here are just a few of the titles, which will give a taste of the range and scope of the units: "Sew Me a Story: African and African American 'Quilt Lore'"; "The Story of Us: An Urban Fifth



WINSLOW HOMER, *BLACKBOARD*, 1877

Rogers Smith, a professor of political science. When Rogers moved to Penn from Yale, he brought with him years of experience in the New Haven Institute. He was confident that the model would work at Penn, and he enlisted the support of a wide circle of Penn faculty and administrators who shared his vision. The nucleus he ini-

Grade Class Creates a Living History Through Memoir and Photography"; "Teenage Obesity and the Problems It Presents for High School Students"; and "The Physics of Music: Making Waves in a Science Classroom." Note that many of these units are interdisciplinary. The questions that elementary and high school students ask often do not fit into the sharply demarcated areas of conventional methods and materials. Each unit is carefully calibrated to meet the Philadelphia School District standards, but each also expresses the particular knowledge and passion of the teacher who wrote it. (For access to all the curriculum units, go to <http://www.tip.sas.upenn.edu>).

Teachers themselves attest to the high standards of TIP's seminars. "We want quality professional development," says Rita Sorrentino, a computer teacher at West Philadelphia's Overbrook Elementary School. "What we get in our schools is either canned or packaged.... You pay your money, you get the handouts, and then you go home and it's up to you to know what to do with it." By contrast, TIP seminars offer teachers the opportunity to engage as scholars in open-ended inquiry; nothing is canned or packaged. Teachers do independent and often quite original research, which in turn provides the energy they bring back to their classrooms. The development of the units, typically 8,000 words long, requires a substantial investment of time and effort.

According to social studies teacher Sam Reed, because you make that investment in mastering the content, "when you take it back to your students they're enriched by your enthusiasm." Instead of the methods and classroom management strategies that receive the bulk of attention in schools of education and top-down teacher development modules, TIP offers access to an exciting world of academic content and intellectual autonomy.

Based on my own experience in leading a seminar on twentieth-century American literature, I can confirm what Rita Sorrentino

and Sam Reed have to say. The sessions were consistently lively and productive, and the conversation quite typically took place at a high level. The units demonstrated a sustained commitment to excellence: mastery of secondary sources, compelling examples, strong and clear pedagogical purposes. On top of that, we had a lot of fun: we were a diverse group of professionals, representing a diversity of opinions, backgrounds, and teaching positions, responding to each other's opinions and interpretations with candor and mutual respect. I do not want to make invidious comparisons, but these were surely among the most rewarding classroom hours I have spent in several decades of teaching at Penn.

Aside from its focal work, TIP is also exploring mutually beneficial collaborations with other Penn programs. For example, TIP has joined with the Graduate School of Education's Teach for America master's program. Several of the TIP faculty have given presentations to TFA students, and TIP teachers have led workshops on curriculum design and implementation.

Needless to say, there remains much to do. Philadelphia's public schools, like those in most other American cities, face a formidable assortment of problems. Students come from homes that are disproportionately poor. Teacher turnover is high, as are student absentee and drop-out rates. Adequate and equitable funding, especially from the Commonwealth, remains more a dream than a reality. School buildings are often dysfunctional and modern equipment is frequently scarce. Despite these obstacles — in many cases precisely because of them — the great majority of Philadelphia's teachers remain resolute in their devotion to the education of the district's two hundred thousand students. The city's future is to a large extent in their hands, and they deserve far more recognition and support than they typically receive. TIP embodies a thoughtful, proven strategy to help the city's teachers do their critically important job.

Whitaker: Vision and Re-Vision

(continued from page 7)

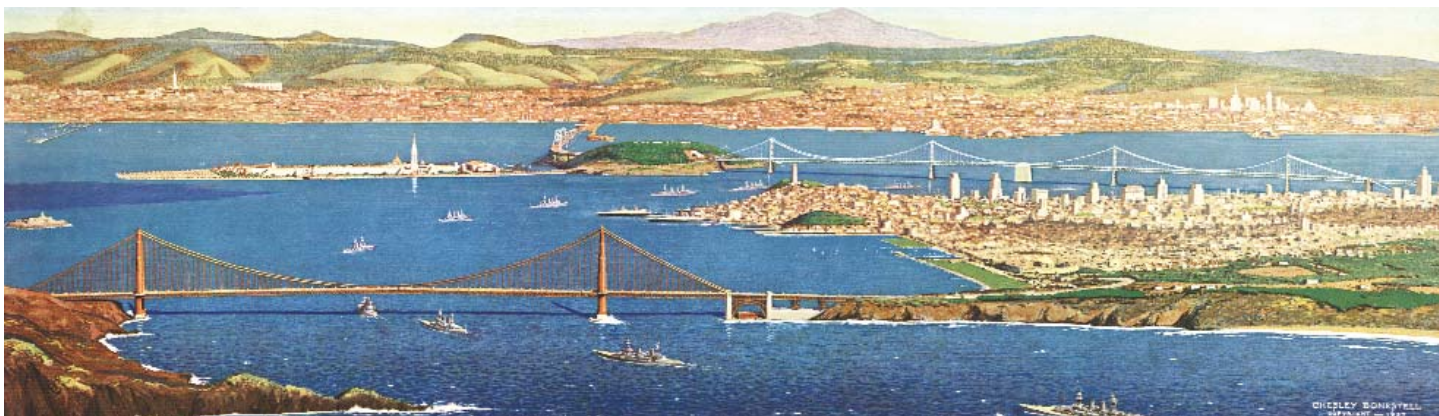
Ecology," which challenges students to estimate the number of horseshoe crabs on a beach, we have chosen Jasper Johns' "Numbers in Color," which seems in effect a visual game of "find the numbers." For Elaine Yee Lun Tam's "Rice to Feed the World" we have chosen a photograph of the rice fields that provide so much of the world's food supply. And with Sharyn Gray's "Experimenting with Estimation in Elementary School," which includes accounts of constructions with base-ten blocks and digit cards, we have placed a photograph of an elegant Sol LeWitt construction, "1 2 3 4 5 4 3 2 1 Cross and Tower."

Paul Fry's description of his national seminar (at first called "Race and Gender in Shakespeare" and later "Approaches to Shakespeare") and Kimberly Turner's accompanying piece "To See or Not to See?" both deal with the question of "visual portraits." We have included a pair of illustrative images. The Tudor portrait from the National Portrait Gallery has been recently identified as that of Catherine Parr, the wife of Henry the Eighth. The very expressive painting of Lady Macbeth was made by a student after Kimberly Turner's class had studied the compositional and interpretive strategies of Tudor portraits.

Comments on three curriculum units from national seminars in 2007 are also included here. From "Across the Curriculum with Detective Fiction for Young People and Adults," led by Paul Fry, we have William Sandy Lewis' "The Whodunit as Open Sesame to Critical Reading" and Christine Shaub's "Chess Game and Detectives." Both contain interesting accounts of the Fellows being contacted by authors represented in the units; and Christine Shaub's piece also describes a "Snitching Awareness" project carried out by several of her students, which received a Delaware award. From "The Science and Technology of Space," led by Sabatino Sofia, we have Ram Bhagat's "Interpreting

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Planning a San Francisco Teachers Institute



CHELSEY BONESTELL, TREASURE ISLAND FROM THE GOLDEN GATE, 1937

Editor's Introduction:

We present here four perspectives on the planning for a new Teachers Institute in San Francisco. Like the Pittsburgh Teachers Institute, this new Institute will be a three-way partnership, involving a school district and two institutions of higher education. Discussions about the possibility of a San Francisco Teachers Institute began with the invitation in 2007 for several administrators from the San Francisco Unified School District to attend the Annual Conference in October in New Haven. In 2008 five teachers from this District became National Fellows. When they came to New Haven for the Intensive Session in July, they were accompanied by several faculty members from San Francisco State University and the

University of San Francisco. During the next two months, meetings for planning an Institute were held by representatives from the District and the two universities. A "Declaration of Intent to Apply for Planning" a new Teachers Institute was then submitted to the Yale National Initiative by the San Francisco Unified School District, San Francisco State University, and The University of San Francisco.

Under the leadership of Superintendent Carlos Garcia, SFUSD had initiated a Strategic Plan, "Beyond the Talk: Taking Action to Educate Every Child Now," in which the District committed to making social justice a reality by increasing its capacity to teach all students effectively. A new Senior Executive Director of

Professional Learning and Leadership for Equity, Dongshil Kim, has been designated to serve with Jeanne D'Arcy (Supervisor, Mathematics and Science) as district liaisons to the planning process.

A San Francisco Advisory Council has been established, comprised of National Fellows, faculty and administrators from the two universities, and administrators from SFUSD. According to the Declaration, additional faculty representatives from the universities will be added to this Council along with potential philanthropic and corporate partners to form the San Francisco Teachers Institute Planning Committee. The planning process will involve the proposal of a Planning Director, the submission of a Planning Application, and a Nine-Month Planning Phase.

Planning for Social Justice

By Dongshil Kim

San Francisco's planning of the Yale local Teachers Institute is framed within the context of the District's Strategic Plan *Beyond the Talk: Taking Action to Educate Every Child Now*. Through this plan, we are called to take action to ensure that ALL students experience a rich and rewarding education that

Dongshil Kim is Executive Director for Professional Learning and Leadership for Equity in the San Francisco Unified School District.

prepares them to be productive world citizens. As part of this moral imperative, we commit to making social justice a reality, engaging high achieving and joyful learners, and keeping our promises to students and families. Embedded in these goals are specific objectives which call for us to create an environment for students to flourish, ensure authentic learning for each student, prepare the citizens of tomorrow, and create learning beyond the classroom.

The research is indisputable. The surest way to improve student outcomes and

ensure the kind of learning environment described above is to staff every classroom with a high quality teacher. Preparing to host a local Teachers Institute here in San Francisco will allow us to offer specific content-based professional development opportunities that increase the knowledge and skill of teachers.

Following the model of the Yale National Initiative, we expect to work with our University partners to provide seminars that integrate curricular areas in innovative and meaningful ways. The

Fulfilling our Strategic Commitment

By Linda Buckley

Yale summer seminars have inspired our teacher Fellows to create lesson units that connected to students' cultures, challenged their creative thinking and solution-seeking abilities, and raised their consciousness around environmental and social justice — all of this while deepening content knowledge for teacher and student alike. The relevancy, immediate application of learning, and fostering of 21st-century skills and capacities will all be important considerations as we plan for our local seminars.

In addition to carefully planning around the content of our seminars, we move forward knowing we must also pay attention to pedagogy. Our district data are clear — we have not yet served our African American, Latino English Learner, Samoan, and Special Education students well. The patterns of student achievement fall too comfortably along demographic lines. Indeed, that is so much the case that we must question and then address inequitable practices in our classrooms, our district, and our larger systems. Beyond basic differentiation, our teachers must be versed in Critical Race Theory and prepared to employ Culturally and Linguistically Relevant Pedagogy. Our current teacher Fellows have expressed an interest, commitment, and urgency around increasing their understandings and knowledge in these areas so that they may contribute to diminishing the predictive power of demographics on student outcomes.

We have many more steps and considerations ahead of us as we continue planning our local Institute. Through it all, we will endeavor to inform our actions and decisions with the best research and an irrefutable resolve to provide a quality education for all students. If we are able to realize the kind of professional development described so far in our local Institute, we can be confident that we are on our way to staffing San Francisco schools with high quality teachers who are engaging high achieving and joyful learners in every classroom.

San Francisco State University's commitment to the Yale Teachers Institute model, like that of SFUSD, emanates out of our strategic commitment to social justice and equity. This strategic priority is the signature value of the SF State campus culture. Realizing that social justice and equity are ideals that may never be fully realized, SF State nonetheless remains committed to the pursuit of these ideals in the classroom and in scholarship whenever this is possible and appropriate. As scholars, the faculty support research and activities that address issues of structural and social inequality in our community and globally. As educators, the faculty and staff are committed to increasing the competencies that enable our campus community to interact effectively in a diverse environment.

The San Francisco Teachers Institute will provide SF State faculty with the opportunity to fulfill this commitment further through classroom exchange with Fellows, which translates into improved curricula for underserved students. While university faculty, in general, typically focus on the latest innovations in content, they are often criticized for neglecting attention to pedagogy. Because seminar faculty are encouraged to engage in interactive, project-based approaches, we expect the Institute experience will move our own faculty away from the traditional "lecture/Socratic method" seminar and toward 21st-century project- and studio-based approaches to learning. Conversely, the public school faculty typically place much emphasis on pedagogical innovations, but lack the opportunity to

Linda Buckley is Associate Vice President of Academic Planning and Educational Effectiveness at San Francisco State University.

participate in faculty development activities related to content. Both sets of faculty deal with underserved and highly diverse populations of students, and the seminars will provide the context for exchange and development that will benefit both sides.

Another direct benefit of the San Francisco Teachers Institute will be the strengthening of the relationship between our university and the public school district. In a sense the Institute will help us close the communication loop from SF State to teachers and back to the university. In our interaction with the Fellows, we have discovered that most of them were trained as teachers at our own institution. Now we

Both sets of faculty deal with underserved and highly diverse populations of students, and the seminars will provide the context for exchange and development that will benefit both sides.

will have the opportunity to have their professional feedback and input that can be incorporated into faculty interaction with current SF State students. This dialogue reifies the integration of theory and practice within our local context.

The Institute will also provide us with the opportunity to further our commitment to social justice through research. We have already begun discussions of developing a grant proposal to assess the impact of the Institute on teachers and on student learning. While some research already exists regarding the impact on teacher retention, it appears that no research has been conducted to investigate the impact of the model on direct student learning. One of our strategies for funding the Institute will lie in securing a grant to research these issues.

In conclusion, the Institute will bring together the strategic interests of three institutions in the Bay Area. The three will be collaborating to improve curricula, advance research in teaching, and improve the education of children throughout San Francisco.

A Legacy in the Making

By Peter J. Novak

The University of San Francisco is the first Jesuit University in the United States to join the process for planning a Teachers Institute. Together with San Francisco State and the San Francisco Unified School District, we are beginning the detailed process for establishing the most western of Teachers Institutes to date. A not-so-surprising affinity exists between these three institutions — all of which are dedicated to promoting an ethic of social justice in education.

This year also marks the 410th anniversary of a landmark educational reform for Jesuit Institutions. The "Plan and Methodology of Jesuit Education" was a coherent, concise, and in-depth rationale for education that guided Jesuit Universities in over 22 countries since its writing in 1599. It has much in common with the Articles of Understanding upon which all Teachers Institutes are based — providing a framework around which local educational institutions can apply their own unique models while retaining a method and structure that has proven effective over time.

At the heart of Jesuit pedagogy is an understanding that education has an impact on civil society. Like a Teachers Institute, Jesuit Education promotes an underlying ethic of providing quality instruction to all students, and is a testament to the effect that this education will have in contemporary society. The Jesuits understood the importance of articulating and spreading a successful educational model throughout Europe in the 17th century and

Peter J. Novak is Associate Dean of the Arts and Humanities and Associate Professor of Performing Arts at the University of San Francisco.

the following three centuries. We are confident that the Teachers Institutes are generating a similar legacy and we are proud to be a part of this historical moment.

The development of a San Francisco Teachers Institute has had a relatively fast genesis. USF began sending teachers to New Haven in the summer of 2008. From a university perspective, the key to developing an Institute is in recruiting enthusiastic faculty. During the summer we received proof of just how successful the Yale model is in generating enthusiasm among participants, but I was unprepared for the following email from one of our Politics professors who wrote to me at 2 a.m. after

It's an amazing experience. . . . I can tell you that we both want to do whatever we can to make this work, and the four faculty from SFSU and five teachers from SFUSD are committed to helping you and others in the administration to get this up and running. But for now, I'm still way too invested in thinking about how a fourth grader gets to know about Madison's view of human nature. It's pretty cool stuff.

I could not have had a more validating email to the promise that a San Francisco Teachers Institute holds. Yet, while the communication and enthusiasm between the three San Francisco-based organizations has been wildly successful and positive, the overall economy has been less than cooperative. It has dampened some of our initial enthusiasm, but it has also forced us to be more creative in our approach.

Although none of us can yet support a full-time Planning Director, we are all thinking of ways to fund a part-time position to help develop the Institute incrementally. One means of support was suggested by the emphasis in Teachers Institutes upon a peer-based model of teaching. Faculty members who attended the summer intensive began to see how our own teaching could be enhanced through working with colleagues in the public schools. They have proposed to the USF Faculty Association that the summer intensives, the

October National Conference, and the seminars themselves be eligible for funding from the faculty development fund. They hope that the guaranteed funding from these resources will at least maintain the same infectious level of enthusiasm from the faculty as we continue to plan and develop a San Francisco Teachers Institute.



FAITH RINGGOLD, *DOUBLE DUTCH ON THE GOLDEN GATE*, 1988

a conversation with colleagues went late into the night:

I've spent the last two days working with a fourth grade teacher from Richmond VA and an AP politics teacher from Chicago on the Federalist Papers and Tocqueville and how to bring that into their classrooms.

A Teacher's Road Toward an Institute

By Lisa A. Ernst

In the fall of 2007, several administrators from San Francisco Unified School District were invited to attend the October Conference in New Haven. Through their participation, officials made the commitment to select teachers to participate in the Yale National Initiative. In the spring of 2008, five teachers became National Fellows: Elaine Tam, Art Concordia, Sarah Pooner, Sally Meneely, and I began the journey.

Over the years, much has been tried and implemented in the area of teacher professional development. Every district struggles with the balance of funding, equity, curriculum, standards, and teacher training, along with standardized testing. San Francisco Unified School District is no different. The district has always encouraged teacher leadership, programs and strategies that address the variety of learners, and curriculum development. But what we do not offer at times is the opportunity for professors to work with educators to bring the depth and knowledge of the content to the classroom. For a veteran teacher, the Yale National Initiative is part of the puzzle that our school district can now incorporate into a Professional Development Plan. A Teachers Institute would provide many opportunities for the teachers — a selection of seminar topics, leadership, collaboration across grade level and subject area, and a close working relationship with the seminar leaders — to meet our students' need to become active participants in the 21st Century.

Lisa A. Ernst is a Sixth-Grade Teacher at Alice Fong Yu Alternative Elementary School in San Francisco.

After attending the Organizational Session in May, the San Francisco Unified School District National Fellows met regularly prior to the Intensive Session in July. We met to reflect, to clarify our thoughts, and to guide each other through what was expected of us in the Intensive Session.



WAYNE THIEBAUD, URBAN FREEWAYS, 1979

Even though we teach in various schools within San Francisco, across grade levels, and across the curriculum, we began to form a professional learning community.

During the Intensive Session in July, professors from San Francisco State University as well as University of San Francisco also made the journey with us to New Haven. They observed, and participated in, various workshops. Like the Fellows, they too were excited and determined to spread the word of the Yale National Initiative. We met and discussed how this collaboration would benefit not only the classroom teacher but the professor as well. As a group, the professors

as well as the National Fellows were empowered to make an Institute a reality.

Before returning to San Francisco, I was asked to be the City Representative. When I was asked, I knew that collaboration and communication between Yale and San Francisco Unified School District were going to be crucial to the development of an Institute. Through the process, I was inspired to be part of the journey. Of course at times it can be daunting, but being true to the National Fellows was my first responsibility.

Approximately two months after participating in the Intensive Session, San Francisco Unified School District officials, National Fellows, and professors and officials from San Francisco University and San Francisco State University began a dialogue directed toward planning of an Institute in San Francisco. After numerous meetings, under the leadership of SFUSD, along with the leadership of the Universities, the Declaration of Intent was submitted to Yale. The plan is that the San Francisco Institute would begin in 2009.

We know that state and federal funding is always an issue in any program. With state budget cuts and federal cuts to education, we are fortunate that we have San Francisco State University as well as University of San Francisco as our partners. Hopefully through all our resources, and under the guidance of Yale, we will be where we need to be to launch the Institute in 2009. What one sees in the Yale Initiative is that it truly embodies collaboration, ownership, and collegiality — assisting the educator from the bottom up, rather than from the top down. The next stage in this journey for us will involve the search for a planning director and the securing of funding.

Remarks on Writing Curriculum Units

By Langdon L. Hammer

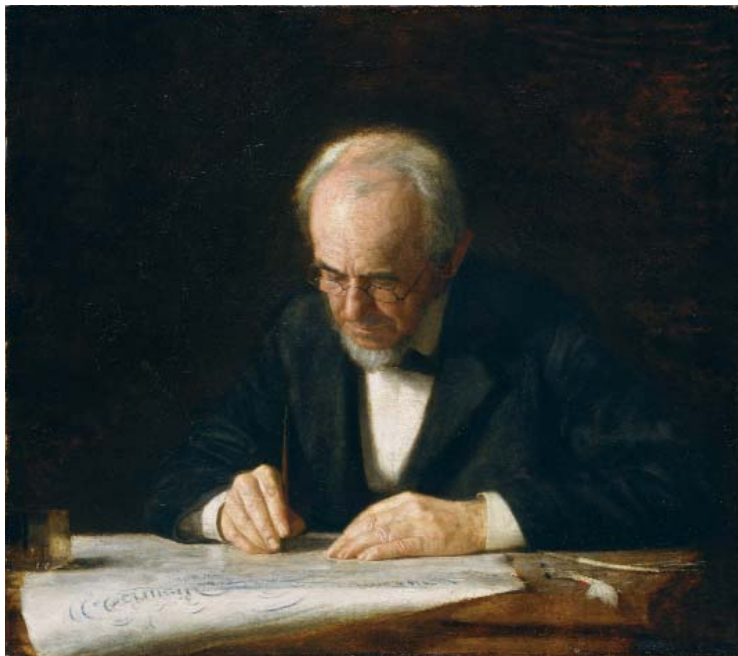
Editor's Note: These remarks were offered to the assembled National Fellows during their meeting in May 2008. The art of writing curriculum units has long been of concern to Teachers Institutes, and they have addressed it in many ways. The schedule for an Institute seminar regularly includes a "prospectus" and "first draft" which become subjects of discussion for their author and the seminar leader.

Very often the "first draft" also becomes subject of discussion among all Fellows in a session dedicated to that stage of the writing. Such discussions are understood to be an integral part of the investigation of the process of "pedagogy as related to content" as highlighted in Rogers' Smith's piece in this number of On Common Ground. Most often Teachers Institutes also hold introductory group sessions for all Fellows which are devoted to the process of writing a curriculum unit. These sessions are usually led by a panel of seminar Coordinators who have had previous experience in the writing of curriculum units. The national seminars in New Haven have regularly followed these Institute procedures. In May of 2008, during the meeting that precedes the July Intensive Session, it seemed appropriate also to include for the National Fellows some remarks by Langdon Hammer, who has long had a professional interest in the practice of writing and who was currently leading the seminar on "American Voices." We are fortunate, therefore, to be able to include in this number of On Common Ground three closely related pieces by him which address different perspectives on what is

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for Teachers Institutes a central seminar topic: "Teaching Voice," "Remarks on Writing Curriculum Units," and "Leading the Seminar on American Voices."

I'm going to say a few brief things about the process of writing that may be helpful to you as you create your curriculum units. Composition theorists talk about writer-based and reader-based prose. Writer-based prose is the first thing that gets



THOMAS EAKINS, THE WRITING MASTER, 1882

put down, something in which the idea is clear only to the writer, if anyone; whereas reader-based prose is, of course, prose that addresses the reader and seeks to anticipate a reader's questions and responses, and to build them into the writing. These two different moments of writing you can identify as draft and revision. As the piece of writing moves towards successful completion, it is becoming progressively and more effectively reader-based. As you are working, you are learning to identify with, project yourself into, the position of the reader, and ideally a number of potential readers.

Who are your readers? For your curriculum units they include your seminar leader,

the Fellows in your seminar, and also your colleagues, the teachers that you work with and who work in the same school environment as you do. But of course part of the power and interest of the Teachers Institute concept is its online documentation, which makes your units accessible, via the Web, to the whole world.

This is a remarkable opportunity as well as a responsibility. It vastly expands and potentially complicates the sense of who your audience is for your units.

Fellows have told me that they have gotten responses to their curriculum units from teachers in Germany, South Africa, and many places in the United States. So the potential audience for your units is very wide. I think you want to write, therefore, for people who don't already know you, who are not part of your seminar, who are not part of your school. That means that you need to write in such a way as to make available to them the topic that you're working on. You need to avoid the jargons that are developed in particular settings — whether the setting is the seminar, or that of your school, or teacher training that you have had that others may not

have had. You want to write as clearly and simply as you can as you get your ideas and plans out there. When you introduce terms, you need to define them briefly and cogently.

There are two further points that I think build on what I just said. The curriculum unit is a piece of writing: whether you are working on Nutrition with Mark Saltzman or Math with Roger Howe, you are writing. You are trying to make your material accessible to an audience through writing. That means that you want to make it interesting. You want to get your potential readers to connect with it. You want to get some of

(continued on page 17)

The Theory and Practice of Democracy

Teaching the Basic Dilemmas

By Ian Shapiro

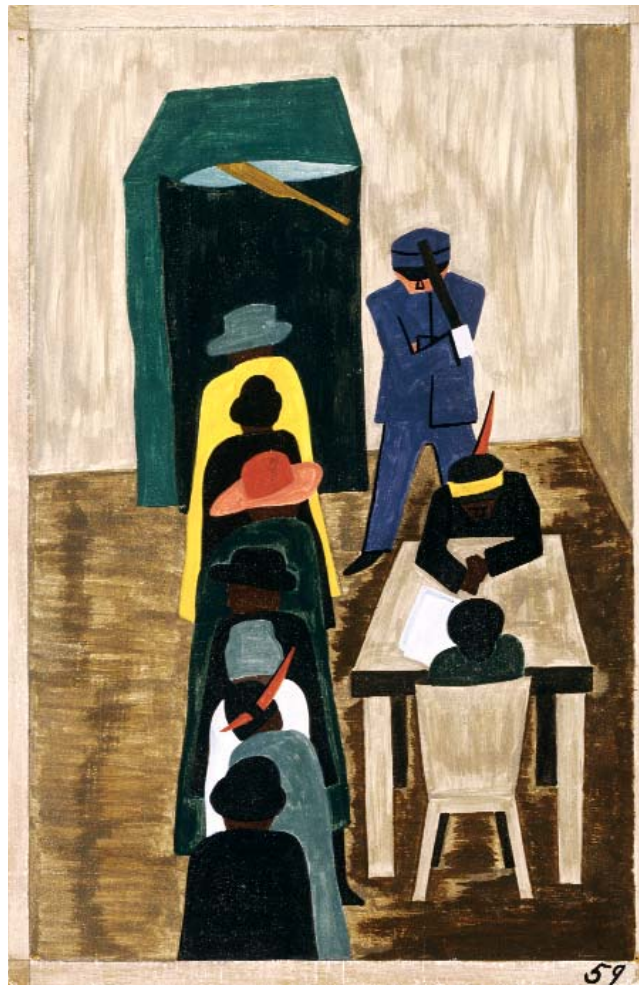
In the summer of 2008 I led a seminar on The Theory and Practice of Democracy. Twelve teachers participated in the seminar. They were quite diverse in their interests and prior teaching in this area. The units they produced ranged from concerns with electoral politics in the U.S. (partly prompted by 2008 being an election year), to constitutional politics and the American Founding, to the impact of the media (including the internet) on U.S. democracy, to democratic politics as viewed through and influenced by literature, to the enfranchisement of marginalized groups, and specific policy issues such as the distribution of income and wealth and terrorism and civil liberties. Most of the units are aimed at high school students in courses in history and social studies, but two are designed for literature courses, and one is designed for fourth graders.

It was a heartening experience to work with such impressively committed teachers, one that is both challenging and humbling. We at Yale are spoiled by the fact that our students are among the best prepared and most highly motivated students in the world. I was impressed by the ways in which the teachers in my seminar thought creatively about how to motivate very different populations of students, by making abstract issues of democratic theory resonate with their everyday experiences through insightful choice of reading material (including fiction), design of games that would engage their students, and use of cleverly-chosen examples close to their lived experiences. The result has been a fine menu of units, summarized below, that can be deployed to teach the basic dilemmas of democratic

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theory and practice to a variety of student populations.

Three of the units are primarily concerned with American electoral politics, in addition to primaries, conventions, and the general election. One explores debates about electoral reform and different electoral systems. Another focuses centrally on political parties



JACOB LAWRENCE, *IN THE NORTH THEY HAD THE FREEDOM TO VOTE*, 1940-41

ties and the Presidency in light of the Constitutional Convention of 1787. And another uses the lens of two knife-edge elections two centuries apart (1800 and 2000) to illuminate such institutions as the Electoral College and the ways in which the system responds to political crises.

Three other units look at democracy through literature and political theory. That

by Jesse Senechal, who describes in these pages his teaching of the unit, explores early twentieth-century African American literature to illuminate the tensions between the ideals spelled out in the Declaration of Independence, the Constitution, and the Bill of Rights, on the one hand, and the realities of racial injustice on the other. Another unit uses a variety of historical sources to explore these same tensions, with a focus on excluded minorities and mechanisms for their empowerment. And a third unit deploys an intensive study of Bryce Courtney's novel set in mid-twentieth century South Africa, *The Power of One*, to illuminate the tensions among democratic and other values, and the ways in which leadership operates in democratic settings.

Three other units attend to the nature and adequacy of American political institutions from the time of their design down through the present. One focuses on a systematic comparison between the U.S. and the Roman Empire, with an eye to whether there are lessons from the decline and fall of Rome for the contemporary U.S. Two of them focus on the mechanics and fairness of the system of representation created at the Constitutional Convention. One spans the period between the Revolutionary War and the adoption of the Constitution and the Bill of Rights, and deploys simulation activities to get students to grapple with the problems the founders were trying to solve. The other is intended to get students to evaluate U.S. constitutional arrangements in the light of evidence from other democracies concerning federalism, the separation of powers, an independent judiciary, and different electoral systems — illuminating the pluses and minuses of different institutional arrangements.

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The Ethic of Risk in Teaching

By Jesse Senechal

Editor's Note: The curriculum unit that set the stage for this essay is "Our Spiritual Strivings: Understanding African American Identities in a Conflicted American Democracy," prepared in the seminar on "Democracy in Theory and Practice." The reading, analyzing, and writing proposed by this unit will help students understand (1) the principles and ideals of American democracy, (2) the tensions in early America between egalitarian principles and racial injustices, (3) how African American writers discussed these tensions as a basis for constructing individual and collective identities, (4) how African American poetry in the early 20th century is partly a response to those tensions, and (5) how the students' own freedom to publish can be a form of opposition to injustice and a way of establishing an empowered political identity.

It's 4 o'clock on the Wednesday before Thanksgiving, thirteen weeks into the school year. I have just finished a day of teaching. I look around my classroom with the question in mind: where am I with my unit? There is a bulletin board on the back wall put together by students from my classes with an American Flag and hundreds of words written in red and blue marker representing the best and worst things about America. There is a collection of video clips on my computer desktop, waiting to be edited, of students debating whether the promise of the

Jesse Senechal is an English Teacher at Armstrong High School in Richmond, Virginia.

Declaration of Independence has been fulfilled. There are personal reflective essays in the portfolio drawer about each student's understanding of his or her power / disempowerment in society. And there are the journal notes I just took on today's memory of my 2nd period class, where an unplanned discussion broke out about storytelling, multiculturalism in Disney's *Pocahontas*, and the relationship between Native American and African American experiences of oppression.



LEWIS W. HINE, ICARUS ATOP THE EMPIRE STATE BUILDING, 1931

Although none of these classroom artifacts are direct results of the teaching strategies I outlined in my unit plan, they are all inspired by the research and writing I did during the intensive summer session in New Haven. They certainly would not have happened without it. Of the strategies that I did write into the unit, I will say that some I have already scrapped, and others I know I might not get to. While I'm sure the core of the unit — the writing of Du Bois and its legacy — will make its way into the class, when and how are still up in the air.

This uncertainty in teaching could lead to anxiety. But not only have I decided not to be anxious about it, I have also decided to embrace uncertainty as a necessary condition of teaching. In fact, I think the process of writing my unit — surely the most thoroughly researched and conceptually ambitious unit I have ever written — led me to something of a revelation about teaching.

While I always thought of teaching as a balancing act between concept and lesson, between theory and practice, as I completed

this unit, and moved into the implementation, I began seeing a related aspect of this dynamic: that teaching is also a balancing act between control and risk. The process of writing this unit did not so much leave me with an idea of how to control the delivery of a prescribed content, as it gave me a sense of new authority regarding the content that provided a base for taking risks. The question shifted from 'what are the best methods for teaching students about Du

Bois?' to 'How might my new depth of understanding about the ideas of Du Bois affect the dynamic of classroom dialogue and activity?' and, an extension, 'What types of new pedagogical risks will this content authority allow me to take?'

In many ways the dominant mode in our schools is one of control. Whether we are controlling the movement of students through the hallways, or the process of delivering content, or the scope of what is taught and how it is assessed, there seems to be an obsession throughout the system

of schooling with ensuring standardization and predictability. This is surely due to the fact that schools are rife with unpredictable variables; namely the minds, voices, bodies and agency of young people. Particularly in urban schools that serve traditionally disenfranchised communities, there is a fear of letting down the guard, of losing control. My point is not to suggest a relinquishing of control; schools need structure and plans and organization. Rather, I am suggesting that our schools need to balance the urge to control with a real support for the ethic of risk in teaching. At least for me it is when I start taking risks in the classroom that I feel closest to my ideal of authentic

Hammer: Writing Curriculum Units

(continued from page 14)

your own passion and concern for your subject matter into that piece of writing — because, just because you care about it, does not mean that someone else will automatically. You need to show why you care about it. And how do you do that? Not by display or raising your hand, but rather by being as concrete, as specific as possible, getting as much of the immediate feel for the material you are discussing into the writing itself through examples and quotations.

Ralph Russo said a moment ago that your curriculum unit is yours, and that is important: it's what I mean when I say you want to get some of yourself, some of your passion, into that writing. It's also true that this is a piece of writing that has your name on it and it's going to be there on the Web. It is a form of publication. You want to do the absolute best job you can, therefore, because you're presenting your work to a potentially international audience. You want to do yourself proud — and your students, and the Institute. But most of all I think, you want to do right by your subject.

education: an education that involves a collaborative, productive, and ultimately liberating dialogue between student, teacher and content.

Along these lines my planning has become progressively more abstract. When I started teaching fourteen years ago, I would spend hours in front of the computer laboring over a detailed script for a step-by-step lesson plan. This year, especially in regards to this unit, I have tended to plan by assembling collections of texts, images, and core questions to share with the students. The collections typically represent tense juxtapositions of ideas that can be resolved through discussion and through writing. Right now the plan for Monday is

Shapiro: Teaching the Basic Dilemmas

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Finally, three other units deal with particular policy issues confronting U.S. democracy. One is concerned with the internet and focuses on getting students to understand how the proliferation of new media outlets, networking sites, search engines, and electronic media shapes democratic practices. It also pays attention to the ways in which these new media can be abused or operate as instruments of responsible democratic empowerment. A second unit deals with the challenge to U.S. democracy posed by the War on Terror since 9/11, with a particular focus on court cases and how the pursuit and prosecution of terrorist suspects affects civil liberties. And the concern in the third unit is with the economic inequalities that persist despite the democratic institutions that many, since Alexis de Tocqueville wrote in the early nineteenth century, have thought would erode inequality. This unit features a contrast between the ways in which distributive politics are made in the New Mexico legislature and by the tribal oyed by the Pueblo of Pojoaque.

looking like this: (1) an excerpt of Federalist #54 where James Madison argues that the slave's true character is both person and property; (2) detailed architectural drawings of slave ships showing how the slaves are stored; (3) a passage from the autobiography of Olaudah Equiano, a slave, using rich imagery to describe the slave ship experience; and (4) the question: what image of Africans do these works present?

I'm worried about this lesson. The content is strong and I'm not exactly sure how my students, almost exclusively African-American, are going to take it. But I think my uncertainty speaks to the possibilities. It suggests that this is a risk worth taking.

Whitaker: Vision and Re-Vision

(continued from page 9)

the Origin of the Elements," an experiential unit for minority inner-city students which uses the construction of collages to illustrate the relationship between microscopic and macroscopic structures in the universe.

We conclude with "Nutrition, Metabolism, and Diabetes," another national seminar from 2008. With Mark Saltzman's account of leading the seminar and Kristin Peterson's "The Way Food Works" we have placed two "still life" studies that emphasize the attractiveness of fruits and vegetables: Severin Roesin's "An Abundance of Fruit" and James Peal's "Still Life with Balsam Apple and Vegetables." And with Kathleen Gormley's "Getting an Early Start to a Healthy Life" we have placed a photograph of "Floor Cake," a sculpture by a contemporary master of Pop Art, Claes Oldenburg.

We close this number of *On Common Ground* with another appropriate blackboard image — this one from Jacob Lawrence's "Migration Series," depicting twentieth-century African American students.

Bridges: The Art and Science for Creating Community Connections

Building Bridges in a Seminar

By Martin D. Gehner

Every day people use a surprising number of bridges as part of their paths of travel between home and their destinations of work, school, shopping, recreation, or other point of activity. Generally, bridges are taken for granted as efficient links along a path of travel. Of course every individual has their own habitual routes according to their need. Bridges are essential elements in the infrastructure to connect communities, cultures and nations. Some hold distinctions as icons of identification for a region or a city. Many bridges have pushed the limits of design, science and technology to achieve new and beautiful edifices which serve the practical function to provide memorable paths for humans to travel. Those which have endured centuries of use are admired for their durable service and also for the quality of design, the high craft of construction, the enduring science of material applications, and the impact on the surrounding community. Innovative visions, together with a clear understanding of the art and science associated with a time and place in history, truly are noteworthy and demand the orchestration of numerous human skills to build a bridge.

A bridge is one of those structural elements in the landscape whose beauty is exactly what you see. The form displays a mathematical system of resolving all the forces placed upon it while its visual impact may be a poetic artifact that depicts a cultural time and place. Some bridges function as utilitarian elements. Some bridges are beautiful structures of extraordinary achievement. A bridge may be so utilitarian that people using it ignore the role it fulfills in daily community life. However if a bridge fails, the imposition on many lives raises an acute human awareness about the economics associated with its creation as well as with its commodity as a significant community link.

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A seminar on bridges offers an interesting broad base of study topics for creative teachers to explore their interests whether in history, art, science, social studies, planning, community development, economics, environments, engineering, architecture, language, music, or other related topics. The story of the Brooklyn Bridge offers drama and insight to the innovation of building caissons plus the entire technological development of the design and construction of a suspension bridge. This bridge is a bold and unique structure revealing a historic period of society. Similarly, the very first cast iron bridge built in 1779 at Coalbrookdale, England created a milestone in the early years of the industrial revolution. This cast iron arch structure became a striking contrast to the previous masterful use of solid masonry material for creating arched structures and bridges. The use of cast and wrought iron in this structure also brought a beauty to the iron craft of mortise, dovetails and keyed joints. Yet the bridge's benefit for human use and safety established a reality of significant community development. Since that bridge's creation, poets, artists, engineers, preservationists, historians, and tourists have embraced that object in the landscape as an enduring example of human commodity and delight. Throughout the world, numerous examples of bridges have become integral to the fabric of a community and between communities and cultures. A seminar on the art and science of *building bridges* to connect communities offers unique opportunities for Fellows to see their fields of interests as integral to the spectrum of requirements for making bridges.

The curriculum unit's focus logically follows from the classes taught by each Fellow. The artists may study form and design; the science Fellows may study physics, engineering principles, or material sciences; the social studies teacher may look at the impact of bridges in a community or a region; the historians may study

historical or cultural contexts of bridges; the mathematicians may study forces or costs; the environmentalists may investigate resources and locations; or, the language arts individuals may focus on cultural characteristics which developed their language. In each seminar, the range of topics for curriculum units stimulates the positive interaction between all participants. It adds a dimension of influenced assessment for individual units as they develop.

Leading a seminar on bridges is not a relationship of expert and problem. It is a relationship between people who bring resources of their combined interests to the table for generous sharing. Teaching goes beyond expertise, it is a way of life — sharing knowledge and discovering individual interests within a context of a wholeness of society. The analysis of forces internal to a bridge structure is as important as the visual beauty of the external bridge form and craftsmanship sitting in the community's landscape. The science of materials is as important as the safety of a bridge for the functions it provides.

Fellows bring diverse perceptions about bridges and when all individual views are shared, varied arrays of ideas spawn new possibilities for enriching initial perceptions. This seminar offered an opportunity to experience a hands-on process for designing and making a model bridge. The project created a base for Fellows to develop an avenue for their students to be inspired, and challenged, by involvement in similar appropriate classroom projects. When the Fellows design and build their individual bridge models, they generally exchange ideas about bridge type, form, material, construction details, structural supports, loads to be imposed, structural stability, and craft skills. Mutual sharing flows as uninhibited collegiality primes the learning possibilities. Each participant becomes an equal learner pursuing knowledge worthy to share with colleagues and students. The process becomes the forerun-

ner of similar classroom activities through the implementation of their curriculum unit.

Curriculum units are developed with focused topics yet based on selected background information which establishes a foundation for the unit. For instance in 2008, a unit for an art class expanded the theme of inspired by nature and studied the bridges designed and built by a current architect/ engineer/ artist Santiago Calatrava. His work, including many beautiful bridges, is influenced by natural structures, forms and motions. Another unit being used in San Francisco is based on bridges in earthquake country. Although broad based, that unit is highly organized to expose students to very detailed aspects of bridge design and construction practices appropriate in the region. Another unit is based on the theme of learning from mistakes wherein the students study bridge failures and the technical issues surrounding specific examples. Together with the additional units' topics, these examples merely suggest the exciting potential for developing classroom activities that capture the imagination and interests of recipient students.

The phrase building bridges is used frequently as a metaphor for an event or a relationship having very positive consequences. It links activities rather than splits them and seeks cooperative relationships rather than disjointed competition. Certainly the phrase should be used to describe the work of the Yale-New Haven Teachers Institute and of the Yale National Initiative. The significant partnerships of institutions are vital to support teachers and students in their quest to learn and to develop personally and professionally. A student's creative spirit needs positive nurturing which embraces their developing abilities and interests. Teachers Institutes provide an exciting context of opportunities for teachers to gain more knowledge while interacting with colleagues and concurrently developing their ideas for curriculum units. Within seminars, the interaction between a teacher from one discipline with



T. M. PRITCHARD, COALBROOKDALE BRIDGE, 1779

colleagues from varied disciplines and student grade levels reveals a substantive base of opportunities for interdisciplinary teaching. The potential for curriculum units is enhanced by input from related disciplines. Within each seminar, ideas unfold like the beauty of a blossoming rose.

As seen throughout civilizations, bridges represent the developing use of materials and systems of construction as known at the time of creation. Natural materials are common in bridges. What is important is that the materials used directly reflect the structural systems employed in the making of a bridge. When making models of bridges in a seminar, material properties must be simulated according to the type of bridge model being represented. For instance, a brittle material may be excellent for making a bridge dependent on compression in its structure such as in an arch. Or a suspension structure depends on a material having tensile properties. So the representation in model format should exhibit similar characteristics. The model

process helps individuals to discover characteristics about properties of materials including the inherent methods of joinery between bridge parts. How supports are achieved, as they always are, the model must represent that requirement. The strength and stability of the structure must be integral to the whole structure. Although seminar time is limited, creating models of bridges offers opportunities to see the realities of form, function, strength, structure, stability, material, and support as they combine to create one whole unit of a bridge as represented through the model.

Bridges will continue to be built as positive connectors between communities and regions. Today's milieu tends toward innovation of material science, suspended structural forms, and developing methods of construction. The future of the art and science of bridge making will continue to place demands on societies. What is most important is that opportunity for individual student learning and development reaches every young mind.

Puentes, Civilizaciones y Cultura

By Maria Cardalliaguet Gómez-Málaga

Editor's Note: This unit is intended for an intermediate Spanish course in high school. It approaches the study of bridges by way of the history and geography of Spain and its civilizations, and the history of bridges on the Iberian peninsula. The unit will introduce students to the study of art, and to the work of the architect and engineer Santiago Calatrava. Most of the class activities will be conducted in Spanish. The plans assume 15 to 18 classes of 82 minutes each.

When I found out I was accepted in Martin Gehner's seminar on "Bridges: The Art and Science for Creating Community Connections," I was overcome with a combination of excitement and uneasiness. The seminar, as initially described, presented the perfect opportunity to inspire my students to value global consciousness and tolerance towards other cultures. At the same time, I was aware of my limited knowledge of the architectural world and, particularly, bridges. Finally, when I discovered that the seminar would require me to build a physical bridge, it seemed to become an extremely challenging endeavor.

However, all my fears vanished five minutes into my first seminar meeting. All of a sudden, the seminar requirements were not as difficult as the written description suggested and I believe that it was due to Professor Gehner, who masterfully led the seminar. I still do not know how he managed to do so, but not only did he help and support all of the Fellows, including me, build a physical bridge, but he also inspired us to build invisible "collaborative bridges" among each other and in doing so, helped us collectively succeed in building our bridges and writing our units.

I wrote "Puentes, Civilizaciones y Cultura" as a multi-purpose unit. I aspired to introduce students to Spanish art, history,

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geography and culture. As a result, I hoped that my students would be able to recognize, describe, analyze and interpret different art styles and, particularly Spanish bridges. The students would also learn about Santiago Calatrava and his work. Finally, they would study the different civilizations and cultures that have shaped Spain's identity and its geography.

After writing the unit for my Spanish III classes, I had to modify it slightly because I was finally not assigned to teach that level this year. In addition, I had planned on teaching the unit towards early springtime, but as I began planning before the start of the academic year, I realized that students would benefit from an early exposure to this curriculum at intervals over a longer duration.

Because I began teaching the unit in November, this article illustrates merely part of our work in the introductory stage of the unit. I began by assessing the students on their knowledge of Spain. At first, the results were neither encouraging nor far from my expectations. Initially, students were not too excited when I mentioned that we would be learning about Spain. They, however, seemed to liven up when I explained the different components of the unit and the activities that we would develop. I then showed a documentary on Spanish Roman Ruins, Cathedrals and Castles hoping that the visuals would trigger their curiosity toward art and monuments, something that is quite foreign to them. To my surprise, I found many students taking notes and engaged in the movie. Even previously apathetic students asked a lot of questions when I stopped the film in order to briefly explain something.

As part of the introduction to the unit, we read about Spain: its geography, history, traditions and so on. Students then were asked a set of questions about Spain. Next, we moved into the geography section of the unit. We worked with maps and read

about and discussed the division into comunidades autonomas. We also analyzed how and why these communities were divided and how they are both independent and part of the central government. At first, students seemed to struggle to understand the concepts since they appeared to be very abstract. When I related such concepts to



their close equivalents in the United States, they understood.

For students, the most enjoyable part of the unit thus far has been the mini-project on these comunidades autonomas. I assigned each student one autonomous community and we all went to the library so they could search relevant information on a couple of very thorough, interactive websites that I had suggested. These websites allowed students to watch videos and pictures while looking for the answers to

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Bridges: Inspired by Nature

By Karen R. Yarnall

Editor's Note: This unit is intended for 3-D Design art classes in high school. It includes historical study of the design and function of bridges, and detailed study of the work of the Spanish architect and engineer Santiago Calatrava, focusing on his aesthetic, his



SANTIAGO CALATRAVA, PUENTE DE LUSITANIA, 1991

range of constructions, and especially his bridges. Students will create bridge models based on objects from nature, and will analyze and evaluate their own bridges and those of their peers. The unit is aligned with the Delaware State Art Standards.

Before taking Martin Gehner's seminar on bridges, I must confess that I used to traverse bridges without giving them much thought. After participat-

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ing in his seminar, I will not be guilty of that again. I could hardly wait to share my unit with the students in my three 3-D Design art classes at the beginning of the school year.

Each person in my seminar had a different approach for his or her unit. In my unit, students examined Santiago Calatrava's works and used structures found in nature as a basis for the design and construction of their own bridges. Calatrava is an innovative architect and artist whose striking buildings and elegant bridges are often inspired by nature.

To introduce the unit, students first worked in small groups to brainstorm purposes and uses of bridges. The results varied from connecting communities to bungee jumping and keeping enemies out with castle drawbridges. They used the same activity and listed types of bridges. The key to success of this variation of "Think-Pair Share" was keeping these short.

The students in my three classes typically range from valedictorians to special education inclusion students. I expected different levels of understanding and sophistication, and that did not detract from the final results. Compression and tension are two of the forces that are integral to the understanding of bridges. I wanted all of my students to understand at least these forces, which can be simplified to pushing (compression) and pulling (tension). I knew that my AP Physics students would probably have a better understanding of these concepts than I, and I encouraged them to take these understandings to further levels (taking them and "running with them"). Using materials like swimming pool noodles and string, students in groups determined which were strong in compression and which were strong in tension, and charted their results. They enjoyed a variety of short learning activities like this. Because I had never taught any of these activities before, I

quickly discovered that the activities went much better in my second and third classes. The first class ended up being my guinea pig class so I started switching the order around.

Through a Power Point presentation, students learned about bridges and innovations in historical contexts. This was followed by a Power Point highlighting Calatrava's works plus a video and accompanying interactive activities in a computer lab. Students went outside and sketched possible sources of inspirations like leaves and acorns for their bridges. After some struggles with drawing on graph paper, they used their problem solving skills to build their own bridges, frequently exchanging ideas with their peers. They later assessed their own bridges and those of their classmates.

At the end, students had to write what they did not like about the unit on bridges. Some of the comments included, "Taking a test on them," "How long it took before we actually got to build them," and "...figuring out where to put the towers and cables so my bridge wouldn't collapse." Comments about what they liked most included, "I liked learning about the history of bridges" and "I liked getting to see how bridges have evolved and changed over time" and "Getting to use spray paint." I did wonder if that young man was the one who lightly spray-painted "I love art" in the grass. It has since worn away. One young lady wrote, "The thing that I liked most was learning about the futuristic Dubai Bridge and using nature as an inspiration for our own bridge."

At the culminating art show, visitors were surrounded by an array of bridges. A ceramic bridge with soaring butterfly wing towers was next to a graceful foam-core cable-stayed bridge with piers that resembled abstracted tree roots. A balsa wood bridge that had trusses that looked like deceptively delicate leaf veins was next to a ceramic brick beam footbridge with a giant eye motif. The ideas inspired from

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American Voices

Listening for Voices

By Langdon L. Hammer

Young people learning to read literature — and not only literature, but any kind of writing that can't be reduced to information — young people need to learn to hear voices. This may be especially true for Americans. The literature of this nation arose in a vital culture of oral performance: sermons, speeches, debates, and drama were crucial forms of expression in early America. This tradition lies behind a continuing preoccupation with voice in American literature: over and over again, American writers imagine themselves not as writing, but as speaking, to their readers. Responding to American literature, we respond to its long history of individual voices.

Our seminar on "American Voices" explored American literature as the creation of particular speakers in multiple forms: fiction, poetry, and prose. We encountered some of the best known, most arresting American voices — the poet who calls to readers across time in Whitman's "Crossing Brooklyn Ferry," the entertaining teenager who narrates *Huckleberry Finn* ("You don't know me, without have read a book by the name of 'The Adventures of Tom Sawyer,' but that ain't no matter"), and the visionary Civil Rights leader who declared, "I have a dream" — while exploring the rhetorical techniques by which these voices were created, and through which they go on speaking to us.

Our readings and discussion included, in sequence, some classics of American literature: sermons and speeches by Patrick Henry, Abraham Lincoln, Sojourner Truth, and Martin Luther King, Jr.; poems by Walt Whitman and Emily Dickinson, Robert Frost (and Frost's letters on what he calls "the sound of sense" as well as his lecture "The Imagining Ear") and Langston Hughes; and Mark Twain. We were con-

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cerned with the ways in which voice is constructed on the page, and the expressive functions of sound in writing.

Huckleberry Finn introduced the question of dialect, and its repeated use of the word "nigger" prompted long discussion of the history of that word and its usage today. We discussed an essay called "Teaching the N-Word" by Emily Bernard, a professor of African American literature at the University of Vermont, which speaks about



AARON DOUGLAS, *LISTEN LORD: A PRAYER FROM GOD'S TROMBONES*, 1927

her experience discussing the word in her college classroom. We also read newspaper articles and personal essays dealing with the question of Black English, James Baldwin's short essay "If Black English Isn't a Language . . .," and selections from Alice Walker's novel *The Color Purple* and Ralph Ellison's novel *Invisible Man*. Ellison's novel, like Twain's, presents a view of American literature as multi-voiced, mixing multiple forms of speech and tradition.

Some of the teachers in our seminar teach students whose first language is Spanish,

and we included two weeks of discussion of Latino/a authors who speak of the experience of learning English, and who reflect on the situation of Spanish speakers in a nation dominated by English. We read essays by and interviews with Richard Rodriguez, and essays and fiction by Julia Alvarez, Gloria Anzaldúa, and Sandra Cisneros. These authors helped us extend our discussion of dialect to the question of language acquisition and the experience of speakers of English as a second language.

I say we discussed these texts and issues, and indeed we did. But we also spent important time in our seminar listening to each other read those texts aloud. When we read texts aloud, we are interpreting them, giving voice to them, and finding ourselves in them. In turn, however, the texts that we read aloud give voice to us, enabling us to think and feel in ways we may not have before. This is an activity, essential to reading comprehension and to power in writing, that teachers can model for their students.

My idea in creating this seminar was that a focus on voice would be a useful way into the study of literature and the practice of writing for students of all levels. Advanced as well as beginning students often feel resistance toward or anxiety about reading and writing. But most young people are expressive speakers and shrewd listeners who are well acquainted with the pleasure and power of oral language from their daily interactions with each other and their families, and from their experience of music, video, and other media. The seminar aimed to develop conceptual and practical strategies for drawing on students' existing talents by using their oral skills to establish a foundation for their work as writers and readers; and the Fellows took up this project in a wonderful array of ways in a series of curriculum units designed for the full spectrum of public school classrooms.

Finding Voice Through Personal Narrative

By Victoria L. Deschere with Jessica Lauver

Editor's Note: "In Their Shoes: Finding Voice Through Personal Narrative" was prepared in the seminar on "American Voices." Students will focus on "voice" and "personality" by learning to read and emulate the styles of professional and non-professional writers. Through imitating the strategies of others, they will seek to find their own voices. The study of autobiographies will lead to the writing of the students' own memoirs.

I hate grading students' essays: an ironic dislike for an English teacher. My essay is about... Point one. Point two. Point three. I hope you enjoyed my essay. It's mind-numbing. But what could I expect: I forced them into an artificial style. Form without personality. Purpose without life. It's hard to realize how crucial voice is in writing until the haze of utter tedium has set in.

When I was accepted into Langdon Hammer's seminar about voice, I began to believe that writing could be enjoyable not only for my students but also for me. I found the students' self-knowledge and their fluency with certain techniques in writing provide the basis of voice instruction. When considering voice development, I created a unit that hinges on two principles: imitation and meta-cognition. Give the students examples of lively writing, excite them to write with a diversity of techniques and help them contemplate who they are. Sitting in a Yale dormitory writing my own unit, I dreamed of long hours of enjoyable reading of student papers

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because finally they were alive.

Reading Walt Whitman, Emily Dickenson, Julia Alvarez and Langston Hughes during the seminar, I felt compelled to write. Their skilled artistry coursed through my veins. I needed to instill that joy of word play into my students. My students began their journey by studying memoirs from our district-recommended anthology to see how to write with voice. As a class they interacted with each piece to determine what techniques the authors used to infuse their writing with personality. Students found the masters used word choice and sentence fluency, as well as standard and non-standard forms of English to make words come alive. After

Most of my students are still finding out who they are. It was most exciting to see how most of them began to write with an individual voice.

exploring published works, students wrote their own memoirs and tried to imitate the techniques in their readings. What came out of their pens was their own voice. Although occasionally they tried a turn of phrase or two that was not theirs stylistically, their peers, during the revision process, would quickly identify the words as inauthentic and guide the author towards something more in keeping with their character. Most of my students are still finding out who they are; therefore it was most exciting to see how many of them began to write with an individual voice.

In first teaching the unit, I had the students complete a meta-cognitive exercise, immediately after publication, in which they analyzed their own voice for authenticity. I recognized that I was more objective as a writer after distancing myself from my own work and decided to give my students the same opportunity. They approached their writing and dissected it like the works from our anthology but only

after a one-week hiatus. Adding this break from their writing to their analysis, created a new perspective for the students.

Some students really struggled with this. This may be because they are still exploring who they are, or are not comfortable interacting with a text critically. For these students their analysis was shallow: "I usually yell a lot. So using a lot of ! is really me. I mean I am really emotional." When I teach this unit again, I plan to conference with this type of student to scaffold their analysis.

Other students were more comfortable with literary analysis and self-evaluation. Their journals showed insight into their character and ability to write in the same way: "I want to do my best. I try really hard at school and take care of my little sister. I use correct English even though my friends don't. I have to be a good example to my sister." Some students would recognize that the difference in their writing style related to actual personality traits and would be able to explain their reason for the change.

This awareness of self and genuine voice was also evident in the peer conferences during the revision process. Students did not just look for spelling and punctuation errors: they interacted with the author about the choices they made about style. That has never happened before in my class. Unfortunately when writing was criticized, students became much more sensitive to the comments because this assignment was close to the writers' hearts. One student took a risk writing her memoir in poem form. When her editor laughed at the free form poem, the author scribbled all over it and left the room crying. Next year, lesson number two is how to give and take criticism.

This September I sat in my living room eagerly lapping up one hundred and twenty memoirs as I would a well-written novel. The students spoke with sincerity and verve; they made me laugh and brought me to tears. I can't believe it: I love grading student essays.

Speak Words, Recite Messages

By Bonnee L. Breese

Editor's Note: This high school unit explores how oral procedures and forms have influenced the African American community and American society as a whole. The study of relationships between communicator and audience will lay a foundation for the students' own performance writings and class readings, and will improve their listening skills. The unit is aligned with several Pennsylvania State Academic Standards.

In this age of high-speed technology, my students gravitate to television and Internet media to hear and view the most up-to-date information concerning the Presidential campaign, as well as to be informed by listening and viewing the debates. I have had to use my curriculum unit's lessons in a timelier and more creative way, beyond the confines of the curriculum guides supplied to teachers by our District. The unit I developed and created, "Speak Words, Recite Messages: The Oral Interpretation of the Word," had to be slightly altered to meet the needs of my Senior Honors English classroom discussions as first-time voters were concerned by the evolving information over the last few weeks. Students were talking about the election, they were registering to vote, they were asking questions in class, expressing views on our class blog, and in the hallways, and listening attentively to speeches made, and advertisements that aired. Students were attempting to take political buttons, posters, and flyers from wherever they

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thought they could. Furthermore, I was watching young people throughout the school community trade political campaign buttons like I've never seen before — I had to change the plans.

I introduced the concept of voice as a power, language as medium. Voice was important to the Presidential candidates and to my students as they canvassed educators in their thinking about what was



CARL VAN VECHTEN, AUGUSTA SAVAGE'S 'LIFT EVERY VOICE', 1939

being heard daily in the political arena. My unit in its purest form was to include only speeches from African American politicians and prominent figures in American History. However, I was now given an opportunity for comparison and contrast of the reactions and responses of both candidates — in their political pasts and in the present. The call and response speaker was

noted and studied; and why was it that one candidate preferred the arena style platform while the other clearly was swallowed by the method? My students had to quickly learn the techniques and the historical tradition of the oratorical style. Students were interested in hearing Malcolm's "Ballot or the Bullet" speech, rapidly responding when hearing facts that still ring true for them in their lives. They

attentively pointed out that U.S. Senator Barbara Jordan in her speech given at the Democratic National Convention in the 1970s cleared the way for then Senator and now President-Elect Barack Obama to speak in 2005 for the same venue. The school community was hyped and many other senior students wanted to be in my class. My students were taking the discussions in the lunchroom, the tutoring and computer labs, parents were emailing... my child needs a more fundamental foundation to find the information you have requested. I kept them on the web, listening to speeches checking and balancing the facts as well as the opinions, students stood on both sides of the aisle — until Obama came to visit our City, their neighborhood in a street rally.

After the election, the discourse about language continued in few students reciting from memory poetry they were assigned. "Language is power,"

I wrote on the board, and then continued by asking students to explain their position on the statement. Several of my students wrote in their journals, "...language is a power that everybody has...." These few and simple words led to a clear divide of beliefs and attitudes in the class. The statement led most students to stand on the premise that the statement was either true

Estimation

Making Estimation Precise

By Roger E. Howe

or false. Three students believed that the statement was neither true nor false, merely a way to communicate to a mass of people at a particular time in a society. Who has the power, they declared, citing present political sources, popular teachers and student leaders. Through this portion of the unit's study students expressed varying viewpoints that were based in the precursor research completed on the African oral tradition. "Your language is your culture's voice," wrote a male student. "In my eyes, language is just a bruise left by a stronger nation, the survival, and the preservation of the other," added another. A female student wrote, "language and power... not everyone has this exquisite gift... it is able to be obtained through cultivation and practice." I was impressed with another female who wrote, "Language shows your intelligence, power shows your understanding..." I queried further — dialect, what about it? Clearly the unit was taking on its own life through its power — student's language, their understanding, and their willingness to learn more.

Next, let the recitations begin, and they did with students angrily learning memorization techniques and poems taken from *Poetry Out Loud* resources. Seven groups of students were assigned to memorize particular poems; all were written by poets of other ethnic and racial backgrounds so that students would be able to reach beyond their own voice to gain a clearer understanding of the voice of the author. Students were digitally recorded and the best of show were videotaped for performance purposes. This was an exciting way to begin using the unit in the classroom. Social studies teachers were asking how they could collaborate with me on the work, and my principal came to visit when the class was asked to be a part of a video conference with other students of National Fellows across the country. There was so much to do, a great deal to learn, a whole medley to say — and then some, in approaching the unit! Later, more will be told to you through — my students' voices.

Estimation is a word that is heard often in mathematics education, but it is rarely explained. The idea of estimation is to say *approximately* how large quantities are. To implement this idea effectively, estimation has to be linked to the same structure that supports exact arithmetic: our base ten place value system (or *decimal system* for short) for writing numbers.

The decimal system is a marvel of sophistication and efficiency. It allows us both to represent numbers compactly and easily, and to manipulate them in important ways, primarily by means of the standard arithmetic operations: addition/subtraction and multiplication/division. Learning how to perform these operations with numbers brings students into contact with the substantial formal structure underlying place value notation. In learning the ins and outs of the arithmetic operations, they may sometimes forget that the primary use of numbers is to express magnitude — the sizes of quantities. Estimation entails refocusing on this basic purpose.

Magnitude is reflected directly in place value. Let's recall the basics. With the decimal system, any whole number can be expressed using only ten symbols (the digits), organized in carefully arranged sequences. A given sequence, such as 123, stands for a sum: $123 = 100 + 20 + 3$. Each of the terms in this sum has a special form: it is a digit (i.e., 0, 1, 2, 3, 4, 5, 6, 7, 8, 9) times a power of 10. The place of the digit in the sequence tells what power of 10 it should be multiplied by. The 3 is multiplied by 1, which is 10^0 ; the 2 is multiplied by 10, which is 10^1 , and the 1 is multiplied by 100, which is 10^2 . The key to making this work is to insert a 0 wherever the corresponding power of ten is not needed to express the number. This principle is most dramatically used in the numbers like 100, and 20 and 3, in which only one digit is non-zero. Because the 2 in 20 appears in the second

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place, with a zero to its right, we know that it means twenty, not two; because the 1 in 100 appears in the third place, with two zeros to its right, we know that it stands for one hundred, not ten or one. This is the principle of place value.

Although the individual digits of a number are important, the first key piece of information about the size of a whole number is conveyed simply by the number of digits in the number. Looking at the number of digits provides a crude sorting of numbers into collections or bins of numbers of roughly comparable size: any number in a given bin is within a factor of ten of any other number in the bin. For example, 9,999 (the largest four digit number) is less than ten times 1,000 (the smallest four digit number). As loose as this is, it is the first thing to understand in estimation: if you can determine the number of digits in a number, you know something important about its size. When financiers talk about six figure salaries and seven figure salaries, they are showing their grasp of this idea.

Sometimes just knowing the number of digits needed to express some quantity is enough. However, often one wants to know it more accurately. The second stage of estimation is understanding how place value lets us gauge the accuracy with which we know numbers.

Most children learn place value in terms of vocabulary: ones, tens, hundreds, thousands, etc. What is important for estimation is *relative place value*. This amounts to the observation that the relative value of two places depends only on their separation. Thus, 10 is ten times 1; 100 is ten times 10; 1000 is ten times 100, and so on. Any place is worth ten times as much as the place immediately to its right. Similarly, any place is worth 100 times the place two places to the right, and 1/10 of the place just to its left, and 1/100 of the place two to the left; and so forth. The relative place value of two places depends only on their separation, not on their specific locations.

This means that in any base ten number, most of the value of the number is in the

leftmost few digits. In fact, one can show that the leading (i.e., leftmost) digit of a number always accounts for at least half the size of the number. Even in extreme cases, such as 199, with a small leading digit and large succeeding digits, the digit in the leading place is worth more than all the others combined. The leading two digits always account for more than 90% of the number; the leading three digits account for more than 99%; the leading four digits account for more than 99.9%, and so forth. Thus, one does not need to know very many digits of a number to know it to very high relative accuracy. Estimation is about determining the first digit of a number, and occasionally the second. The first digit (along with, of course, the number of digits) very often is quite sufficient.

In fact, it may be difficult in many situations to know accurately more than the first two digits of a number. More than three is asking a lot. Another way of interpreting the statements above about the leading digits of a number, is that if you know the first two digits of a number, you know it to within less than 10% error; knowing the first three digits means knowing the number to less than 1% error; and 4 digits leaves less than .1% possible error. Each additional known digit reduces the error, or increases the accuracy, by a factor of 10.

When one is dealing with numbers that arise from measurement, that are used to describe the real world, it is difficult to achieve four digits of accuracy. Indeed, that much accuracy might not even make sense. For example, take the radius of the earth. It is somewhere around 4,000 miles. You can state it more accurately than that, but it does not make sense to specify it to the nearest whole mile, because the earth is not a perfect sphere. The bulge around the

equator caused by Earth's rotation; the lumps and dimples like the Himalayas and the deep ocean trenches; and other irregularities, mean that it only makes sense to talk about the radius of the earth to about ± 10 miles, which means the last decimal place in a figure like 3958 should be ignored. Use 3950 or 3960.

Opinion or election polls give another



JASPER JOHNS, *NUMBERS IN COLOR*, 1959

kind of example. These polls usually involve asking 1000 to 1500 people for their opinion about an issue. When the results are reported, they are usually asserted to be accurate to within $\pm 3\%$, less than two digits of accuracy. There is a good reason for this: to get the error down to $\pm 1\%$ or less would cost ten times as much!

Even counting, which might seem as straightforward and precise a process as ever could be, is subject to error. In fact,

accurate counting is hard. As I was writing this, an op-ed piece appeared in the New York Times (by Charles Seife, on 4 DEC, 2008) on the recent senatorial election in Minnesota. The official tally after the closing of the polls gave the Republican candidate a lead of 137 votes, out of nearly 3 million. This is closer than one would expect if each voter just flipped a coin. A

recount was of course called, and some districts were even recounted twice. Despite the best efforts to be careful, the two recounts differed by about .02%, or .0002. So this extremely careful count had four, but not five decimal places of accuracy. The error does not come simply from recording mistakes. From one count to the next, ballots can appear or disappear, making even the total number of votes uncertain. This rate of error would give an overall error of about 600 votes out of the 3 million cast, larger than the gap between the candidates. Seife makes the point that we will never know who the winner "really" was. A similarly ambiguous vote, in Florida in the 2000 presidential election, has had major consequences for all of us over the last eight years.

Thus, a full understanding of estimation includes awareness of the limits of accuracy. One should be suspicious of numbers reported with too many (especially, more than 3) non-zero digits.

Expressing a real world number to many digits is not merely confusing, it is probably misleading.

The seminar explored these ideas and their implications at some length. We learned the usefulness of one-digit arithmetic (and even, in some situations, of zero digit arithmetic!). The units produced by the seminar Fellows vary in level from first grade to high school, but they all incorporate these ideas in a meaningful way.

Rice to Feed the World

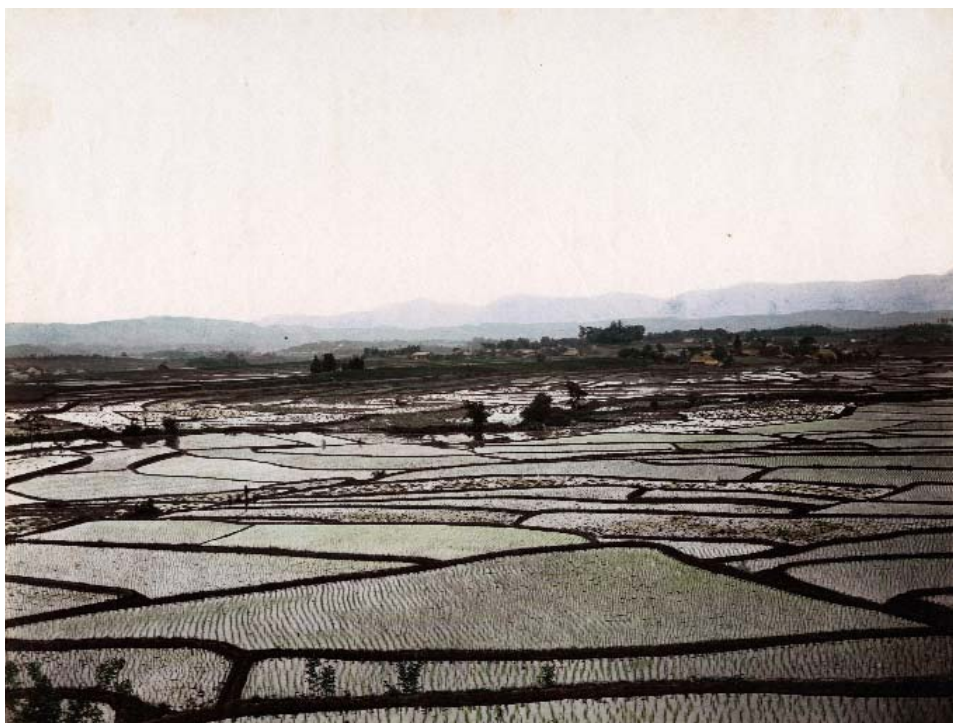
By Elaine Yee Lun Tam

Editor's Note: This unit, written for sixth-grade math classes in a school that offers Chinese language immersion, is being conducted in Cantonese. Working with the world population, students learn about the place value of large numbers, notation in powers of ten, and rounding and order of magnitude. Then, starting with the Chinese rice dumpling (zongzi) as a basic unit, they use scaling and proportion skills to estimate the rice needed to feed a population. They then explore area and volume to estimate the necessary storage, and apply proportion skills to find the land needed for production. The unit relates closely to the sixth-grade cultural study of the Dragon Boat Festival, during which families traditionally make and distribute to their neighbors such dumplings.

Learning is part of the process of teaching. The opportunity to participate in this year's national seminar on "Estimation" led by Roger Howe was a rich learning experience for me. I was excited to learn with fellow colleagues in depth about the topic of estimation and to write a math unit that complements the language immersion design of my school.

I have planned to teach this curriculum unit in two parts. In the fall semester, I am teaching the first part, which deals with the population numbers and estimations of rice mass relating to area and volume. The class looked up the online U.S. and World Population Clocks. It was hilarious when the students tried to copy down the changing population number. They were quick to come up with the reasons for the changes in population, which led to our discussion of the nature of estimation. When we compared the population of different countries or cities, I introduced the idea of using multiplicative thinking instead of addition or subtraction. The stu-

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UNKNOWN PHOTOGRAPHER, RICE PADDY FIELDS, JAPAN, CIRCA 1880

dents were intrigued by how simple it is to multiply and divide using the exponents in powers of ten. More importantly, the comparisons were more meaningful to the students. It was especially eye-opening for the class when they realized that our sister school in Beijing has about seven times our student population, a ratio similar to that with populations in Taiwan and Hong Kong. I wanted the students to stick with the multiplicative way of thinking as we move into the next part of our unit in estimating the mass of rice.

As part of a math professional development to learn about students' math thinking, I was asked to interview a couple of students. I thought this would be a great opportunity to try out the rice mass estimation problems. This pre-assessment exercise gave me insights into student thinking and was helpful in determining the effective teaching moves for this part of the unit.

To introduce the idea of estimations for rice production, the class taped flat base-ten sticks on file folders to build squares of various sizes as pretend rice fields. We

spread grains of uncooked rice over the squares to represent what can be grown in an area of land. The squares were grouped according to the length of their sides — for example: 3 cm., 6 cm., 9 cm., and 18 cm. The students were to estimate the mass of rice that would fit the squares.

By this time, most students agreed that multiplication is the way to go; however, they were surprised that their estimates were still too small. They had focused on the length of the sides of the squares instead of thinking about the proportion of the areas. A simple teaching move I made was to use the overhead projector to show pouring of the rice from a smaller square onto a larger square. I manipulated the rice by pushing the rice around in the larger square to help the students see the proportion of the rice in the larger area. Another move was to cut out smaller squares to fill the larger square to show the multiplication factor in the area. Lastly, I asked the students to record the area of the squares and used the data to aid with their guesses.

Experimenting with Estimation

By Sharyn F. Gray

Editor's Note: This unit, "Crunching Numbers for Lunch," teaches estimation skills through examining environmental issues at the school site. Its overall goal is for students to make sense of statistical reporting and very large numbers through evaluating the use and waste habits of the school community.

The students worked in small groups. I gave the rule that they must share their thinking and explain their guess mathematically before they measure the rice on the squares. A few students asked me whether their guesses were correct or not. Other students in their group would jump in to respond that there is no correct answer because the "harvest" can vary. They shared the reasons for their guesses. Some students were surprised that others had come up with the same estimates, but had totally different mathematical explanations. One group even decided to manipulate the rice by piling the rice in the squares and guessed very high numbers. Their reason was that they wanted to have an abundant harvest. I was ecstatic when one group concluded that a theoretical estimate is better than guessing the actual measurement by luck.

After the exploration of mass and area, we continued with estimating the rice in relationship to volume. The students discussed the multiplicative relationship between area and volume before they made the cubes for measuring the rice. Upon a suggestion from other colleagues, I thought this would be an appropriate place to introduce the idea of rate, the volume per amount of rice. Since the rice grains fill up the cubes compactly, there is less manipulation of the mass by the students. They can apply the strategies of estimation to make their guesses by using the rate. At the moment, we are completing this part. The students are enthusiastic as they discover the power of exponential growth in the mass of the rice in the cubes.

I have made many discoveries about my students and my teaching while working through this first part of the estimation unit on rice. I am excited about teaching this math unit because I believe that it will help students make sense of what estimation is and learn how math is connected to the real world. I look forward to completing the second part of the unit in the spring semester.

In developing this unit, which I am now teaching, I was determined to create the context for students that I feel is lacking in much of our curricula. Therefore, though my national seminar focused strictly on estimation, my unit integrates the teaching of mathematical practices by focusing on situations in which we may use these practices outside of math class or even outside of school. I decided to focus on the growing trend to "go green." My goal was to bring a global issue down to a context kids are familiar with and use mathematical techniques to analyze a problem that exists in their world.

One of my readings, *Garbage Land: On the Secret Trail of Trash*, by Elizabeth Royte had me all fired up. I decided that it would be my mission for every child to know about the effects of trash upon our world. After discussing the question with Roger Howe, I agreed to present the study as an analysis, not a problem. I would teach the students how to get the data, how to calculate the numbers, and let them decide if my assumed problem really even exists.

Given the challenge of teaching a new math program, I decided to teach my unit to a smaller group of students who remain in class while other students attend band. We started off by reading *The Lorax* by Dr.

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Seuss. The kids quickly understood that in Dr. Seuss' opinion too much waste leads to severe consequences. I breathed a sigh of relief as they indignantly began designing posters and bumper stickers about the evils of pollution. We then moved on to reading a newspaper article that was chock full of numbers and numerical statements. The students understood that a number such as "100 thousand" is "really big" but had no point of reference for understanding the magnitude of such a number and what that would really look like in their world.

At this point we jumped into the mathematics with a series of lessons on relative place value, analyzing the number 1,234 in its various forms. We modeled the number using base-ten blocks, stacked them up, and

We modeled the number using base-ten blocks, stacked them up, and made a little building that fit into a 100 square centimeter footprint.

made a little building that fit into a 100 square centimeter footprint. Students also created this number using digit cards broken down into the relative place value components,

stacking cards that read 1000, 200, 30, and 4, and aligning them on the right edge with the smallest number on top. The number read visibly as 1,234, yet the cards could be taken apart into their various place value components. We then started separating out the cubes in our model, and the values on the cards, and writing these different representations numerically. After a few minutes the students recognized that $1,234 = 1000 + 200 + 30 + 4$, modeling it with their cards and writing it on their white boards. Suddenly, someone noticed as they were pulling their cards apart that if the 1000 and 200 stayed together, they had $1200 + 30 + 4$. Hmm. This set off a flurry of investigation, and in five minutes our white board was covered with equations, such as:

$$1230 + 4 = 1234$$

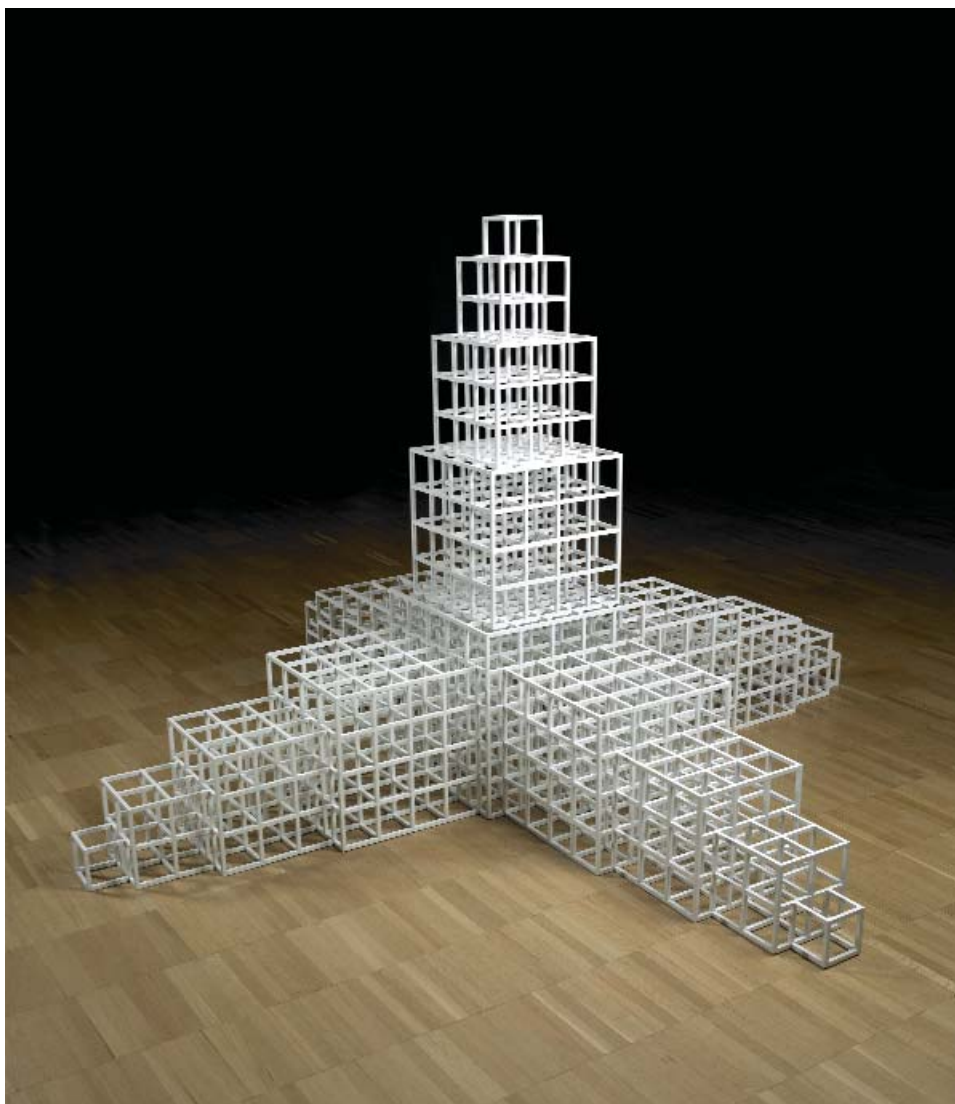
$$1030 + 204 = 1234$$

$$1200 + 34 = 1234$$

In fact, this group "got it" so well that I had them teach what they learned to the rest of the class when they returned from band, just to see if they could translate our discussion into a conversation among fourth graders without my input. I then had all students write exit cards to see if they could in fact reiterate their learning, and was pleased with the results. I plan to continue this technique of having the research group communicate their findings and teach new concepts to the other group on a periodic basis, as it seems to work and has reinvigorated my instincts that there really is something to constructivist theory.

Once the main group was comfortable manipulating these numbers, we moved into larger numbers, playing games to reinforce place value concepts and emphasizing the significance of the leading digit. One day there was a heated discussion between two gifted students about where to place three eights when trying to create the largest nine digit number possible with the numbers 8,7,5,2,1,2,8,8, and 3. The student who was not in the instructional group thought the eights should be the leading digit in each period, i.e., 8__ , 8__ , 8__ since the eights were the largest digits available and would make each period have the largest value possible. She had come in on the tail end of our discussion about leading digits, and made a leap to a logical, but erroneous conclusion. The other student insisted that the eights all be placed in the millions period, because "If you put the second eight here, it's 80 million and that's greater than if you put the 8 there, because that's only eight hundred thousand, and millions are always greater than thousands even if you have hundreds of them." The best part came moments later, when that student, who is incredibly gifted but also classically unmotivated, turned around and said, "This is fun."

In preparation for actually designing our study of trash, I felt I needed to assess my students' ability to calculate area and volume and assess relative proportions. We had visually experienced this with our



SOL LEWITT, 1 2 3 4 5 4 3 2 1 CROSS AND TOWER, 1984

earlier experiments, but our study could eventually require manipulating larger numbers. We therefore read Russel Ash's book, *Incredible Comparisons*, which sent students on quests to determine how many pencils would make the area of a Q.(189), how many dry erase markers it would take to measure the height of an Egyptian pyramid (2004), and how many Teddies it would take to cover the couch in our classroom.

I feel at this point that the group is ready to start designing its investigation into use and waste in our school. Teaching this unit

has allowed me to reconnect with my own ideas about the nature of learning, and I have since decided to open up the subject matter to allow for more student input. I plan to model the cafeteria waste problem as an instructional series and then have the students develop their own investigations of something in the school community. We are currently working on a unit in our regular math program on data collection and analysis which will prepare the students for designing their own investigations. I am eager to see what my students decide to investigate and conclude.

Estimation in Ecology

By Brian P. Bell

Editor's Note: "Estimation in Ecology" focuses on the horseshoe crab census in Delaware Bay as a geographically and biologically relevant instance through which to introduce students to concepts and procedures that are necessary for mathematical estimations of quantity.

Because my students find math to be both difficult and boring, I try to create entertaining ways to teach them "difficult" concepts. To make this unit entertaining as well as applicable to the real world, I decided to use the census of horseshoe crabs in the Delaware Bay as the central focus.

I began by teaching the students place value, then rounding, decimals, exponents, powers of ten, and order of magnitude. After a month on these concepts, I decided it was time for them to solve their first estimation problem. As I began talking about what problem we could solve, I looked out my classroom windows at the new football field in the back of the school — and an idea hit me: "How many blades of grass are in a football field?" One student called out, "Mr. Bell, that's impossible!" So we took this time to talk about the usefulness of estimation. No one will probably ever know how many blades of grass are in the football field, but that doesn't mean we can't come up with a reasonable estimate. We discussed how estimation is different from a guess — that it is based on math, observations, measurements, and sometimes the prior knowledge of a subject.

In order for the students to see how different a guess may be from an estimate, I asked them first to guess how many blades of grass were in a football field. Each student shared their guess with the class prior

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to starting our estimation. I then asked them how we could start on this problem — what would we need to know, what observations or measurements might we need to make? They decided that we needed to know the measurements of the field. The students then proposed counting the blades of grass from one side of the field to the other. After we discussed the problems with this method, we agreed that we might need only to count a yard's length of grass to begin an estimate. Having done that, the students worked a few multiplication problems and arrived at an estimate of 432,000,000 blades of grass in a football field. Some further conversation about per-

I told them that my assistance in this activity would be minimal, because I wanted to see if they could use the concepts they had learned in class without me.

centages helped them to understand that the figure 2 does not represent a significant portion of this overall estimate.

The students then spent some time learning about the horseshoe crab of the Delaware Bay and its importance to us. This was interesting to them because our school is less than an hour from some of the best horseshoe crab spawning beaches in the world. After a couple of days learning about the horseshoe crabs, we began our final project. I set up our "beach" across four long lunch tables in the cafeteria, a total of five meters. I used Smarties candy for the males, and SweetTarts candy for the females. The female horseshoe crabs are larger in real life, so I wanted to use something that would replicate this size difference. The total number of Smarties and SweetTarts was just over 3,200, though I did not share this information with the kids until the following day.

The students were given a piece of string, a small grid (1.5 in.), a meter stick, and a data table to complete this exercise. Their goal was to use their materials to count the number of crabs in one grid every 20 cm., then use their numbers to estimate the number of crabs on the tables. I told them that my assistance in this activity would be minimal, because I wanted to see if they could use the concepts they had learned in class without me. My principal, Dr. Claude McAllister, came to the cafeteria to observe them during this lesson. He walked around to the different groups and asked what kind of numbers they were determining, and how they were determining

them. He reported to me that he was impressed with the students' knowledge of the concepts and their ability to apply them in a real world situation. The next day in class, we discussed their estimates. Most of the groups offered reasonable estimates of the actual count of 3,200 horseshoe crabs. Some however, were not very close, so we used that opportunity to discuss their meth-

ods, learn where they made a mistake, correct their mistake, and then determine a new estimate. One group in one of my classes actually gave an estimate of 3,200!

At the conclusion of this activity, I had the students each write a letter to my seminar leader, Dr. Howe, telling him in their own words what they believe they learned about estimation. A few of the letters made me realize that some students will need more practice with estimation, which I intend to incorporate into my lessons throughout the year. Overall the letters let me know that thanks to Roger Howe, and Gary Kreamer, of the Delaware Department of Natural Resources and Environmental Control, who offered guidance and proofread my paper on all horseshoe crab facts, I had created an entertaining unit that enabled the students to solve "difficult" problems with confidence.

Approaches to Shakespeare

Finding a Variety of Possibilities

By Paul H. Fry

I was delighted to lead an enthusiastic group of Fellows in a Summer 2008 seminar for the Yale National Initiative called at first "Race and Gender in Shakespeare" and later "Approaches to Shakespeare." We read *Macbeth*, *The Merchant of Venice*, *Othello*, *As You Like It*, *The Tempest*, *The Taming of the Shrew*, and *Romeo and Juliet*, in that order. We were a diverse group, including several high school teachers, some with AP classes, one from an arts and performance magnet school, one from a vocational and technical school, and one art teacher — of whom more in a minute; several middle school teachers, one a specialist in the teaching of English as a second language; and a third grade teacher. Responding to such a broad range of interests, needs, and educational development, these teachers saw a variety of possibilities for teaching Shakespeare in the classroom, both within

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the mandated exposure to Shakespeare from the ninth through twelfth grades and in more surprising contexts. The rubric of the seminar, featuring "race and gender," was not of special interest to a number of teachers, though five did write curriculum units specifically on that topic and more broadly concerning character and identity. Four others took up topics involving culture, politics, and religion, topics in which identity understood as individuality shaped by group characteristics is still an important consideration. Even the tenth unit, focused on the sonnets, touched on themes that reflect character.

The "visual portrait" as a means of learning about characterization is a widespread practice among teachers lately. Typically students are asked to draw their character with no concern for a likeness, even just to draw a stick figure, and then place around the figure various attributes (thoughts on the head, feelings on the heart, actions on the limbs of the body) supported by quotations from the text. Several of the units for

our seminar entailed such a lesson idea, but Kimberly Turner's adaptation of it is quite a different matter. She is an art teacher, and her purpose overlaps only partly with the motive behind the "visual portrait": Using both costuming exercises and also the chance of a drawing lesson in oil pastels, she wants students to develop an image of a Shakespearean character as the sort of human being he or she might actually look like; but an equally important part of her well-informed unit is the teaching of the relationship between Elizabethan portraiture and contemporaneous art-historical developments on the European continent. She has sent me a number of examples of her students' work, and I must say first and foremost that they are splendid displays of artistic talent and a real tribute to Kimberly's skill as an art teacher. The students' loving attention to fidelity of costume is also remarkable, and shows how much historical atmosphere they absorbed without perhaps having been fully conscious of doing so.

To See or Not to See?

By Kimberly K. Turner

Editor's Note: This curriculum unit, prepared in the seminar on "Race and Gender in Shakespeare," aims to encourage students in an inner-city middle school to apply to an art project the reading strategies being concurrently learned in an English class, and to gain an appreciation of aspects of Shakespeare's plays and their historical contexts. Students will examine how "identity" is communicated in Tudor portraits and then use similar techniques to create their own "portrait" of a Shakespearean character.

There are two things that keep me engaged and motivated after teaching for 17 years: my own personal

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love of learning and the pure joy that comes when students exceed my expectations. I adore Shakespeare and the Tudor period of English history, and in September I was very excited to share this with my Art I students, though not without trepidation. This was Shakespeare after all, and I was planning on doing my unit with eighth graders. Would my students also enjoy Shakespeare's plays? I have taught long enough to be fairly confident about knowing what my students will do and how they will respond to a unit. I was hopeful that they would enjoy it, but I was completely unprepared for their response. They literally fell in love with Shakespeare.

I had purchased ten copies of the three plays on which we were focusing. I assigned each student one book to read and asked that they read one act for each class period. There was much whining. The

usual comments were made. "That is too much!" "We can't read that much!" "That will take too long!" I gave them my compassionate yet firm directions and basically said, "That's the assignment." The next class period I got the first of many shocks that came with teaching this unit. Most of the students had gone ahead and not only read the act assigned, but had finished the whole play and wanted to check out a different play! I did NOT expect that. Before the end of the unit, several students had read all three plays and had started reading plays that they found on their own.

I was also surprised by how involved with the characters they became. I had initially planned on only focusing on three plays: *Macbeth*, *Othello*, and *The Taming of the Shrew*. I felt that these were plays that my students would find engaging. I was surprised that a few students had, on

their own, read other plays which had characters that they wanted to explore. They were so excited about the characters they had "discovered" that they were willing to buy the play to have it in class to use. I never expected students to happily buy their own copy of a Shakespeare play.

After our in-depth analysis of the characters and our study of the Tudor period and Tudor portraits, the students were given the challenge of deciding how their selected character would be portrayed in a portrait. They needed to think about what their character would wear, how they would be posed, their expression, and any items that could be included as symbols. During the next week they brought in clothing, wigs and objects while I asked other teachers and friends if we could borrow anything appropriate. I even found an inexpensive



CATHERINE PARR, ATTRIBUTED TO MASTER JOHN, CA. 1545

Halloween costume that was a Tudor dress.

Since these were 8th grade students, who can try very hard to exude coolness, I expected them not to object to dress-up but to be a little wary about looking foolish. Again they surprised me. They loved dressing up. The sheer joy that the students had on that day is hard to convey, but I know it is a day that they will remember for the rest of their lives. I certainly will always remember it. A day that had the potential to be chaotic with students dressing up and posing, and having their picture's taken, went shockingly smoothly.

Their enthusiasm for dressing up continued into the studio part of the project. Every day that they came in, they immediately pulled out their drawings and went right to work, skipping the habitual five to ten minutes of socializing. This particular class comes back to the art room after lunch every day, where the usual topics of discussion are social in nature. But now all they talked about was Shakespeare!

I was not the only adult to be surprised by my students' enthusiasm. The English teacher, who was concurrently teaching *Romeo and Juliet*, told me that she could see a difference in the students' engage-



KENSINGTON VIVIER, *THE BRINDED CAT HATH MEWED*, 2008

ment. The two of us took the students on a field trip to the Folger Shakespeare Library. After our time there, the docents expressed their appreciation for the students' interest and prior knowledge. They said they were very pleasantly surprised by how engaged the students were, and that they were one of the best groups with whom they had ever worked.

And, best of all, the high caliber of their art surprised me. They exceeded every one of my expectations. At a time in my career when I feel confident about assessing my students' capabilities, it is a joy to be surprised by them. This unexpected reaction from my students is what I will carry with me in the future, just as I know they will long remember this unit. These are the types of lessons that make teaching joyous and confirm all of the reasons I began teaching so many years ago.

Cardalliaguet: Puentes

(continued from page 20)

the questions about their comunidad autonoma. The majority of my students were excited about the project. At the end of that class I gave them the option of taking home their projects in order to insert pictures and to polish them. To my own surprise, more than two thirds of the students did so, bringing back serious pieces of work. Maybe they will continue to impress me with their group Power Point projects and class presentations to follow.

This is only the beginning of the unit. We will then move through the history and art history sections, look in some detail at different styles of bridges (Roman, Romanesque, and Gothic) in different parts of the country, and finish with a yet closer look at modern bridge architecture by studying Santiago Calatrava and his work in depth. The last part of the unit will consist of a collaborative project. I am looking forward to it and (secretly) hoping to witness the kind of energy and collaboration I experienced this past summer while attending Martin Gehner's seminar.

Nutrition, Metabolism, and Diabetes

Human Nutrition and Biomedical Engineering

By W. Mark Saltzman

Humans eat, drink, and breathe to bring into their bodies the raw materials for growth, repair, and generation of the energy necessary for the actions that bring pleasure to life. In most cases, the adult body achieves a dynamic state called "homeostasis," in which the amount of nutritional input balances energy need, so the weight of the individual remains constant with time. Even with natural mechanisms of homeostasis, most individuals gain weight as they age, because of changes in their rate of activity and changes in the metabolic processes in the aging body. So to maintain good health, every person must be conscious of the changing nutritional needs of their body as they age.

Good nutrition is the bedrock of human health. But, even in our information-rich society, it is difficult for citizens to define the elements of good nutrition. Conflicting information from health experts and misleading advertising from food manufacturers compound the problem. The relations between food intake, nutrition, and human health are becoming increasingly important in the US. The Center for Disease Control (CDC) reports a dramatic increase in obesity in the US over the period from 1985 to 2005. And disorders of metabolism, such as diabetes, create tremendous challenges for many individuals in the US and other nations.

This seminar provided an overview of human nutrition from the perspective of biomedical engineering. From a mechanical viewpoint, the human body is an elegant machine that requires inputs for sustained operation. In the seminar, we addressed major questions regarding human physiology: What are the processes responsible for input of nutrients and raw

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materials? How are molecular nutrients extracted from ingested materials? How are these processes controlled?

Specifically, the seminar covered the following topics:

1. Healthy diets
2. Fats, carbohydrates, and proteins
3. Nutritionism (or the industrialization of nutritional information)
4. Diabetes — the chemical and anatomical changes that result from this disease, as well as ways to treat the disease
5. Carbohydrate metabolism

The seminar provided an overview of human nutrition from the perspective of biomedical engineering. From a mechanical viewpoint, the human body is an elegant machine that requires inputs for sustained operation.

6. Protein metabolism
7. Fat metabolism
8. The Western diet and disease
9. Drinking and water
10. Micronutrients
11. Food allergies

The discussions were enhanced by our reading of two books: *In Defense of Food* by Michael Pollan and *Eat, Drink, and Be Healthy* by Walter Willett.

The Fellows prepared curriculum units that covered a breadth of information on diet and metabolism and health. The range of material was impressive, as well as the range of grade levels that the seminar produced units to satisfy.

Several of the units focused on material that was appropriate for high school students. One, called "Eat to Live," uses hands-on activities to introduce the chemistry and function of the important classes

of biological macromolecules. Another, called "Stoichiometry — A Necessary Tool in Chemistry," uses food chemistry to illustrate the principles of chemical reaction stoichiometry. And yet another, called "School Lunch: How Healthy Is It," explores the use of graphic design in the presentation of nutritional information, and encourages students to test the health value of the foods provided in their own schools. Kristin Peterson prepared a unit called "The Way Food Works" that focuses on the short- and long-term effects of ingested food on body metabolism and health — and writes in these pages about her teaching the unit.

Many of the units were addressed in various ways to elementary school classrooms. One, called "Fast Food, Fast Track...To Nowhere," describes some of the problems with obtaining our nutrients from fast food. Another, called "Healthy Choices Lead to Healthy Bodies," explores the use of hands-on activities related to food to teach science concepts. Lori Paderewski prepared a unit called "Food Allergies Beware: We Know Your Secret" which provides information to help elementary school teachers and students keep their classrooms safe for students with food allergies. Another, called "Feeding our Bodies, Fueling our Minds," presents information on digestion, healthy eating, and improved academic performance. Yet others focused on some specific aspect of nutrition. One, called "High Fructose Corn Syrup: What Is It Good For?" discusses the prominence of high fructose syrup from corn in our national diet. Another, called "Developing Student Leaders Through Nutritional Empowerment," uses "Service Learning" projects to teach nutritional information and leadership skills. And Kathleen Gormley prepared a unit called "Getting a Healthy Start on Life" which focuses on the relationship between food, the process of digestion, and exercise — and also writes in these pages about teaching the unit.

The Way Food Works

By Kristin Peterson

Editor's Note: This unit, prepared in the seminar on "Nutrition, Metabolism, and Diabetes" is designed to teach the complexities of digestion and metabolism on a human cellular level, while emphasizing the consequences of food choice on our health. It will fit into the International Baccalaureate program for biology, a two-year course taught to juniors and seniors.

It's that time of year when we're bombarded with food. Families and friends gather to savor meals of holiday treats and specialties: succulent meats and sauces followed by potatoes and rolls, topped off with cookies, candies, and pies. As if the temptation weren't enough, we're encouraged by our families to stuff ourselves, then go back for seconds. Meals are a huge part of our culture and an important way to share time and show appreciation

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with family and friends. Yet with obesity and diabetes on the rise across America, it's time we took a second look at our love affair with food.

As an athlete and the child of a gifted cook, I've always had a fascination with food. In my first two years of teaching high school biology on the south side of Chicago, I made improving student nutrition a personal mission and spent weeks emphasizing the importance of understanding what we eat and why. Of course, days later I'd find kids eating chips and guzzling soda for breakfast. I needed inspiration. I needed the concept of a healthy lifestyle to matter to them. For many of my students, my class may be their last formal exposure to health and nutrition. If they remember one thing from biology, it should be the function and understanding of the food they put into their bodies. It is something everyone does each day, and it will affect our lives at some point.

When an administrator at my school told me about the Yale National Initiative, I

leapt at the opportunity to take Mark Saltzman's seminar on "Nutrition, Metabolism, and Diabetes." Not only did I get to travel to Yale, but I found the inspiration I needed in a fantastic group of teachers led by an extremely knowledgeable and patient professor. I left New Haven in July armed with twenty-five pages of labs, activities, and lecture material, and a great sense of determination.

Though my unit may be modified for any level of life science or biology, I wrote it specifically for juniors in my International Baccalaureate section, a rigorous college-preparatory degree program taken by a small percentage of our students. These students are leaders in the school, and I am confident that they will carry the unit's message to their classmates and others throughout the community. We began with the concept of energy, since my students recalled that this was the primary purpose of eating. We then moved to the energy molecules themselves: carbohydrates, proteins, and lipids. Using molecular bead kits, my students put together monomers (building blocks) of each of these nutrient molecules, then assembled them into larger molecules, then broke them down again to simulate the actions that are constantly occurring in each of their cells. For example, they worked in pairs to construct multiple glucose (a monosaccharide, or single sugar) molecules and then simulated chemical reactions to link them together into glycogen (a polysaccharide, or starch). They prepared a brief video demonstrating the process and explaining as they built and then broke apart the molecules. One of the challenges of molecular biology is that we are dealing with things we cannot see. Even though the kits we used to simulate the molecules are thousands of times larger than the molecules themselves, it gave the students a hands-on approach to the way that these molecules grow in size to store energy and break apart to release it.

After examining the energy nutrients, we discussed blood sugar and insulin. Many of

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CLAES OLDENBURG, FLOOR CAKE, 1962

Getting an Early Start to a Healthy Life

By Kathleen G. Gormley

Editor's Note: This unit for third-graders, prepared in the seminar on "Nutrition, Metabolism, and Diabetes," aims to encourage the adoption of a healthy lifestyle. Its interdisciplinary approach makes use of science, mathematics, and physical education classes. Its content is also aligned with standards in English and Language Arts.

A few weeks ago, the mother of one of my students shared a story. As Charlie was completing his math homework, he looked up at her and announced, "Mom I am going to go to Yale someday so you have to make sure I work hard!" My participation in the Yale National Initiative has helped me to inspire my students to set their goals high. After a few weeks in my third-grade classroom, Charlie is not only expecting to go to Yale, he realizes he will need to work hard to get there!

This past summer in Mark Saltzman's seminar on "Nutrition, Metabolism, and Diabetes," I developed a curriculum unit called "Getting an Early Start to a Healthy Life." There are many reasons to teach a unit about nutrition and healthy lifestyles to third-grade students. The incidence of diabetes is growing among young people. This increase of diabetes has been linked to the increase in childhood obesity, which is a worrisome trend. I want my students to pay attention to what they put into their bodies and understand the effects that foods have on their mood, activity level, and academic performance. I want them to be aware of how their bodies feel when they engage in physical activity. Giving students this information early in their lives will enable them to begin healthy practices now that will benefit them throughout their lives.

My curriculum unit integrates standards from Mathematics, English/Language Arts, Science, and Physical Education. Using

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SEVERIN ROESEN, AN ABUNDANCE OF FRUIT, CIRCA 1860



JAMES PEALE, STILL LIFE WITH BALSAM APPLE AND VEGETABLES, CIRCA 1820s

this interdisciplinary approach helps me to show my students how these subjects are connected instead of teaching skills and topics in isolation. The students are learning about healthy living while they add up their total number of calories for a day, a week, and a month. It is exciting to watch as they tackle adding numbers in the tens of thousands. Because the columns of numbers are connected to their lives, they approach their work without hesitation. They are writing in journals about making healthy choices using the newly learned vocabulary. They are classifying this new vocabulary into nouns, verb, and adjectives during word sorting activities.

As we proceed through the unit, students will use laptops to conduct research and report on the digestive process. They will then choose how they will present the information they have learned, join interest groups to create power point presentations, or posters, or possibly write songs.

Because students learn better through active participation, my new lesson plans include some practice in Yoga one hour each week with a trained instructor. Exercise and Yoga are about mind, body, and spirit. The

ultimate goal is to achieve balance in life. Experiencing Yoga provides my students with an overall awareness of their bodies and gives them a positive outlook on physical fitness. Every Monday afternoon we push our desks out of the way and lie down our mats. After each session, students record their reflections explaining how their bodies and minds are reacting. Charlotte sees an improvement with her balancing from week to week; Nate is learning the importance of stretching his spine. The students are now setting goals for what they would like to work on next week: Shanelle is going to listen to the instructor more and not fool around with the person on the mat next to her. Every week the students become more focused during the session. I expect that this enhanced focus will soon transfer into other areas in our classroom.

Authentic, real life implications increase the interest level for my students. The students are reporting on data collected from their own lives. They are keeping logs that track their daily food consumption and physical activity levels. As a result, students are becoming conscious of the food choices they make and the physical activi-

ties they engage in. Perhaps more importantly, they are beginning to see the connection of these two elements — eating and exercise — to living a healthy life. I give this connection a visual reference by asking the students to use balance scales. Students place weights on the left side of the scale to represent the calories in from food. Next they place weights on the right side of the scale to represent the calories out from activity. If the scale is balanced, they realize they are on the right track. If the scale is not balanced, students are able to make judgments about how to create a balance. Students then graph calories in on white paper and calories out on a transparency. We place the calories out graph on top of the calories in graph and students are able to see if their intake matches their output.

As I prepared this cross-curricular unit based on state standards and including activities that would be effective with my students, I gained much from my experience with the Yale National Initiative. But it is my students — like Charlie, Charlotte, Nate, and Shanelle — who are reaping the greatest rewards.

Peterson: The Way Food Works

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my students have family members with diabetes and were very interested in glucose regulation. Next was digestion, where students learned the basics, then tried their hand at digestion. Students digested albumin (egg white protein), potato starch (carbohydrate), and milk (protein and lipids) to simulate digestion in the stomach and small intestine. They selectively added different enzymes and used indicator solutions to determine if molecular breakdown had occurred. A final lab determined if starch or sugar could be absorbed in the small intestine, using dialysis tubing to simulate the organ. The interactive, hands-on approach of the lab aided the students in understanding the significance of the different

enzymes and the location of the different phases of digestion and absorption.

My goal was to make the unit applicable to the students and to involve them on a personal level whenever possible. As the unit progressed, they had more and more questions, and then began to draw conclusions of their own. I finally feel the connection that I had been looking for in previous years — a true appreciation for what fuels our body.

There's actually quite a bit of unit remaining, including a project where students are to research different "long-term" effects of food and broadcast that information to the community. Most importantly, though, I hope they look at their holiday meals just a little bit differently, and consider their health as well as their appetite.

Yarnall: Bridges

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nature were easily evident in some. Others were so abstracted that the sketches on the graph paper had to be examined to determine the source. The variety of bridges was as rich as my students' imaginations.

I heard one of my students tell another, "Watch out for Mrs. Yarnall. She's obsessed by bridges now!" I explained to him that I just wanted to share my passion. I think that I did. In 10 years, my students will not remember which bridge is the world's longest or tallest. Those are not enduring understandings. But I do think that most of them now have a greater appreciation and understanding of them. They may even have a chance to have an impact on the building of a future bridge in their communities.

Some Curriculum Units from 2007

Chess Game and Detectives

By Christine Freeman Shaub

Editor's Note: This unit, entitled "Police Investigative Challenges: To Snitch or Not to Snitch, That is the Question," was prepared in "Across the Curriculum with Detective Fiction," led by Paul H. Fry. It aims to enable students to learn about the techniques and challenges of solving crimes where there is an uncooperative witness.

These past few weeks, I have had the opportunity to indulge in some of my teacher's Yale experience. Who would have known that by reading a simple story [Edgar Allan Poe] that a person's mind could be opened to so many new things, all at one time? I believe that I am thinking the Yale way.

Ashlee Henry, 10th-Grader

Within the confines of teaching the law, unorthodox questions arise. As a legal vocational instructor at Howard High School of Technology in Wilmington, one of my responsibilities is to teach my students the expectations of the workplace, as well as the trade. In teaching 10th-graders Introduction to Criminal Justice, I was faced with students who were resistant to exposing important facts related to solving criminal offenses. When I posed hypothetical questions to my students about sharing information as a witness, the students did not want to be labeled as a snitch. In taking the national seminar "Across the Curriculum with Detective Fiction for Young People and Adults," with Paul Fry, I sought to develop a curriculum unit focused on how students could better understand the investigative challenges police face with reluctant witnesses. The idea was to hone in on the effects of snitching, witness intimidation, and ethnic and social perspectives in policing. All are key

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factors that can hamper a successful criminal conviction.

In teaching the unit, I chose to use several books, the first being *Snitchcraft* by Edera Davis. This book presents the social phenomenon of snitching, police corruption and the use of paid confidential informants. Ms. Davis offers an "After the Book" section that presents helpful questions for discussion and resources. The exciting part of teaching this unit was the interest evoked in the students by the readings. The students wrote a synopsis and offered opinions on the snitching problem that was presented in the book. They cheered for the success of the main character, but were disappointed when he was wrongly convicted. I think the most surprising and exciting part of teaching this unit was having author Edera Davis actually contact me after the unit was published. She commented, "I tried to incorporate values I was raised with [in the book], the need for education, prayer, respect, not to prejudge based on race, and an understanding that there are consequences for your actions. I really believe the public should know there are teachers like you and programs like the Yale National Initiative, trying to address present day issues with our youth." I was encouraged by Ms. Davis' words and shared them with my students. Her book was certainly a catalyst in helping me to address this timely issue with America's youth.

The next story was by the father of modern mystery, Edgar Allan Poe. Poe wrote "The Murders in the Rue Morgue," a classic murder story in Paris. Detective Monsieur Dupin (Poe writing in the first person) worked to solve the murders. Poe compares the analytical strategies used by a chess player and a detective as a means to decipher key moves in piecing together the puzzle. The reading and vocabulary were very complex for the 10th-graders. My teaching strategies were basic: read aloud and echo reading. Armed with our dictionaries, we entered the world of Detective Dupin. We examined witnesses and found

their accounts obscure. After reading Poe, there was a vocabulary test and essay writing connecting snitching to the story. Student Karmel James states, "Not every witness will tell you what you need to know, detectives must find ways to solve the crime by using just what the witness tells them. Maybe the witnesses in the 'Rue Morgue' were afraid to 'snitch' because of repercussion of what would happen to them; that's what detectives face today." Student Ebony Spriggs states, "in order to get a witness to tell, sometimes you have to use the proper motivation, and be crafty, so that you can get them where you want them. Detective Dupin was very crafty."

Another component to teaching this unit was a project-based assignment. The students created informative brochures on snitching to pass out to the community. The brochure addressed snitching as a moral dilemma; it explained police and courtroom procedures and defined laws related to witness intimidation. Three of the students decided to start a "Snitching Awareness" campaign at our school. School Resource Police Officer Detective Diane Brown, along with students Gursimrat Kaur, Jonathan Vargas and Jeanine Mowbray conducted informative sessions in 9th-grade classes. They also made oral presentations to the Mayor of Wilmington James Baker, Public Safety Director James Mosley, and Wilmington Police Chief Michael Szczerba. The students explained that in many of their communities, witnesses were reluctant to be witnesses because of fear. They offered interventions to help law enforcement officers and the community with this problem. Their work was recognized by SkillsUSA, an organization where students demonstrate occupational and leadership skills in local, state and national competitions. For their work in "Snitching Awareness," the students received a silver medal in Tech Prep Showcase-Public Service Administration from the State of Delaware.

The Whodunit as Open Sesame to Critical Reading

By William Sandy Lewis

Editor's Note: This unit for high school students, "More Than Just Whodunit — Using a Mystery Story to Motivate Tenth-Grade Students to Read," was also prepared in the seminar "Across the Curriculum with Detective Fiction." It incorporates a study of the major elements of any story or novel but emphasizes material that may arouse the students' interest as a puzzle that relates closely to their own experience.

It all started with a May train ride from Philadelphia to New Haven. Little did I know that my mind would be thoroughly boggled by what I would experience there. It was the introductory weekend of the Yale National Initiative's summer intensive session. Paul Fry was to be the leader of a seminar entitled "Across the Curriculum with Detective Fiction for Young People and Adults."

I had been an avid reader of mysteries for many years (I learned during that weekend in reading his "The Vicarage" that for W.H. Auden "...the reading of detective stories is an addiction like tobacco or alcohol.") and I jumped at the chance to study mysteries at Yale and somehow finagle my love of the genre into my teaching at my high school in Southwest Philadelphia. Over the course of that weekend I was to learn that despite the belittling protestations of Edmund Wilson in *The New Yorker*, many critics would agree with John Rebus, the protagonist in *Exit Music* — a mystery in Ian Rankin's Scottish series — "...that cops were like the priesthood, the world their confessional." Like a priesthood, detective-story heroes take the place of a deity and serve its interests. They are the arbiters of rightness whose job it is to eliminate the bad and repair the good. That is, the world is once again set right in a

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mystery story. Once again the rents and tears in the social fabric are repaired by the sometimes fumbling efforts of a flawed protagonist.

All of this was news to me. All I knew was that I loved to read mystery stories. And I wanted my students at my high school in Southwest Philadelphia, who are low-income, mostly African American, digital natives, and abstemious readers, to share in the delight of participating in the solving of a mystery. I hoped thereby to overcome their deep-seated reluctance to engage in sustained and careful reading. After all, who does not like a good mystery? At the time of writing my curriculum unit, I taught tenth-grade English. My duties now involve teaching twelfth-grade

I wanted my students to share in the delight of solving a mystery.

English students, who will therefore study my curriculum unit.

I knew of a good writer of mysteries whose books I avidly read and whose humorous easy-going style would appeal to my students. And — to boot — he had written a mystery in which Sheriff Walt Longmire has to set things right on the streets of Philadelphia. So, during the summer session I created a curriculum unit on *Kindness Goes Unpunished* by Craig Johnson. Craig Johnson lives in Ucross, Wyoming, pop. 25. His main character is Sheriff Walt Longmire of fictional Absaroka County in Wyoming. His faithful sidekick is Henry Standing Bear, a Cheyenne Indian, whose independent attitude is an antidote to the Tonto stereotype. In *Kindness Goes Unpunished*, Walt and Henry Standing Bear drive to Philadelphia in Standing Bear's unique, antique Ford Thunderbird to visit Walt's daughter, a lawyer in the city. From that innocuous beginning things quickly take a turn for the

worse. In many mysteries, the setting becomes like a character in the story. So it is in *Kindness Goes Unpunished*. Philadelphia becomes a major player in the solving of the crime, as Walt follows clues which take him back and forth all over the city.

I finished the curriculum unit on *Kindness Goes Unpunished* and went about trying to bring the teaching of it to fruition. An email from Alan Lee, the indefatigable director of the Teachers Institute of Philadelphia, brought a pleasant surprise. Craig Johnson was interested in meeting with me, having found my curriculum unit on the web. He liked what I did and wanted to incorporate my unit into his own website as an example of what

could be done with his stories in schools. When he was in Philadelphia, Alan Lee and I met with Craig Johnson for — at his request — "a steak and a Yeungling beer," and we talked about his craft, and about how to use his mysteries in the classroom. Craig said he would be delighted to come to our school to discuss his stories, and what goes into creating characters, plot, and all the other elements of literary creation.

Thanks to my involvement in the Yale National Initiative, I have been able to create a curriculum unit which will allow me to share my enthusiasm for the mystery genre with my students, and which will encourage reading among my students with an appealing and entertaining assignment. And I have had the opportunity to meet with a prominent writer who has graciously agreed to share his experiences and insights with my students.

I am looking forward to teaching my curriculum unit on *Kindness Goes Unpunished* to my senior classes. When the ennui known as senioritis numbs the academic enthusiasm of this senior class, I'm hoping that this curriculum unit will excite their interest and boggle their minds, just as mine was boggled during this experience!

Interpreting the Origin of the Elements

By Ram Bhagat

Editor's Note: This experiential curriculum unit in Chemistry for minority inner-city high school students was prepared in "The Science and Technology of Space," led by Sabatino Sofia. It aims to teach scientific methods, encourage reading across the curriculum, inspire the development of creative problem-solving skills, and enhance social and emotional intelligence.

Creativity flourishes in classrooms where there is a synthesis of many modes of knowing. We should recognize that interpreting the choreography of Alvin Ailey or compositions by John Coltrane involves a process of critical analysis quite similar to analyzing scientific data or solving a complex math problem. My overall goal for this curriculum unit is to inspire urban minority youth, especially African American male adolescents, to develop creative problem-solving skills and to enhance their social and emotional intelligence. In inner-city schools, the teachers must design and implement culturally relevant curricula to prevent or reduce alienation, anxiety, low self-esteem, depression and aggression in the classroom. In his research on Urban Science Education in low-income communities, Tobin describes the importance of cross-cultural competence. And Cox contends that curriculum designers who fail to incorporate minority groups' values into the curriculum are refusing to accept and legitimize the students' language.

Chemistry teachers are desperately seeking ways to hook their students on this abstract and intimidating subject. It is frustrating for students to hear boring lectures for hours each week. That one-dimensional approach also misleads them: they learn to dislike science and consider it a bland subject. On the other hand, inadequate resources make it extremely difficult to conduct sophisticated scientific

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experiments. In *Style Magazine*, July 2004, Brandon Walters wrote, "when helium fills balloons it makes them rise, but when it fills an Open High classroom, helium makes students dance." My curriculum unit is an imaginative approach to teaching students about the birth of matter. In technical terms, this approach combines the principles of Aesthetic Education, Science Education, Emotional Intelligence and Multicultural Education (ASEM). Put simply, it integrates the performing arts — specifically drumming, dance, and drama — into the Chemistry curriculum. I call this the "3D" process. For this unit, I added a fourth D, design, which encompasses the visual dimension. I believe that this method will ensure that hundreds of inner-city students will develop creative analysis, cultural synthesis, and emotional intelligence.

With the knowledge gained from the National Seminar on "The Science and Technology of Space" led by Professor Sabatino Sofia, I navigated an excursion for my students from the origin of the Universe to the formation of the elements. Using a classic film, photographs of microscopic and subatomic structures, as well as macrocosmic images from the Hubble telescope, my students created a unique collage to depict the relationship between the System of International Units (or Metric System) and the various levels of structural organization. Considered in itself, this visual art project, entitled "Measuring the Cosmos," aimed to display the relative size of structures on various levels of organization. But the goal of this activity was for students to create a visual interpretation of distance and perception.

After viewing and discussing *Powers of Ten* by Charles and Ray Eames, the students designed a 308.4 cm. (120 inches) by 45.72 cm. (18 inches) collage, employing the SI Units, to illustrate the relationship between specific microscopic and macroscopic structures in the Universe. The product affectionately called *A Cosmograph* was designed to be portable

with three equivalent folds. Images were arranged in an exponential hierarchy from lowest to highest. Actual microscopic and macroscopic structures were creatively represented.

My students found this process-oriented excursion quite challenging. They would like to have had a prescribed recipe to help them solve the puzzle of the *Cosmograph* design. However, through this educational process of aesthetic inquiry, as practiced by the Lincoln Center Institute, they gained practical insights and strengthened core skills that readily apply across the curriculum and throughout life. For example, abstract thinking and problem solving — skills as relevant to studying a ballet performance as to conducting a chemistry experiment or solving a mathematical equation — were required by this interpretive learning experience. In the end, creative analysis and cooperative learning yielded phenomenal results.

Frequently, students ask why they have to take Chemistry or Physics. Does it really matter? And many urban minority youth are uninterested in science because its pioneers rarely look like them. Experiential learning can help such students develop their social and emotional aptitudes and connect with the essence of their humanity. James Wright, director of Math Science Investigators (MSI) at the University of Richmond, developed a summer program for middle and high school students to cultivate the intellectual, social and emotional abilities of these potential scientists. Wright contends the MSI participants have more self-confidence taking honors and advanced classes in school. According to Michael Geisen, 2008 national teacher of the year, creativity may be sacrificed by "achievement" as currently defined. When very creative students show up in our classrooms, they do not fit into the current system. Twenty-first century classrooms should be able to stimulate various types of intelligence and provoke imagination.

On Common Ground®

Strengthening Teaching through School-University Partnership

Number 13, Spring 2009
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The Yale-New Haven Teachers Institute is an educational partnership between Yale University and the New Haven Public Schools designed to strengthen teaching and learning in local schools and, by example and direct assistance, in schools across the country. In 2004, the Institute announced the Yale National Initiative to strengthen teaching in public schools, a long-term endeavor to establish Teachers Institutes in states throughout the nation.

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Smith: Strengthening Teaching

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A five-year quantitative study of the impact of Institute experiences on teachers and students in New Haven further shows that the Institute attracts participants roughly equally from each identifiable demographic group: women and men, younger and older teachers, new and experienced teachers, white and African American teachers — with the latter in fact over-represented. The study also shows that *Institute participants also had nearly twice the retention rate of non-participants* in local teaching. Overall, over 50% of those who were teaching in New Haven in 2000-2001 had stopped being New Haven teachers by 2004-2005, a turnover rate consistent with national averages, especially in urban districts. That turnover percentage was substantially less for those who had been Fellows. The study design does not permit a claim of causality, but in light of the high percentages of New Haven teachers who become Fellows, it is reasonable to view this correlation as substantively significant. Because research suggests that experience within a district is more strongly associated with teaching effectiveness than earlier experiences elsewhere, this finding is especially notable.

The continuing positive results of annual surveys of teachers at each Institute site and of national seminar participants leave little doubt that teachers consistently rate their Institute experiences and the curricu-

lum units that result favorably along the five dimensions agreed to be key ingredients of teacher quality. Though we have less data on teachers' experiences in using Institute curriculum units, those data are also positive. The New Haven quantitative study indicates that Institute seminars attract a broad range of teachers from every observable demographic category and that those who choose to be Fellows are much more likely to continue teaching in the district than those who do not. These results are all the more credible in light of the ways the Institute approach embodies the different elements that researchers have found to contribute to successful professional programs: a focus on content and

pedagogy linked to content; active teacher learning; teacher leadership; duration; alignment with state and local standards; and, somewhat less extensively, collective participation and continuing evaluation.

It is advisable for Institutes to continue such surveys and to undertake additional quantitative and evaluative studies of student and teacher outcomes. Such evaluation can confirm, maintain, and improve the impacts of Teachers Institutes as they continue to foster teacher leadership, develop supportive teacher networks, heighten university faculty commitments to improve public education, and create positive partnerships between school districts and institutions of higher education.



JACOB LAWRENCE, *THE MIGRATION OF THE NEGRO*, PANEL NO. 58, 1940-41