

a fine FACTA



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President's Report

Peter McWhir

Dear Colleagues

I hope this finds you in good health and looking forward to a well deserved summer break at home or abroad, with family and friends.

A lot has happened over the last few months regarding the emerging role of specialist councils.

At the Annual Representative Assembly in May, delegates approved a resolution that membership in a specialist council would be provided, free of charge, to all ATA teacher members. The procedure for doing this has still to be worked out, but it is to commence this coming September. The consequences of this decision will have a tremendous impact on how we conduct our business and the ways in which we will serve you, our members.

The Association feels that specialist councils should play a much bigger role in the professional opportunities provided for the membership. To this end, I have provided most of the convention committees with names of arts educators who would be willing to present at their sessions. If you are aware of a colleague who would be willing to present, or if you are willing to do so yourself, please let me know, and I will add you to the list. The FAC does not involve itself in any selection process—we merely give the convention associations your names; they will then contact you, and it is up to you to submit a proposal for their consideration. Many of the convention committees have proposal submissions available on their websites.

The Association wants all specialist councils to have their website on TNET as soon as possible. We have been on—albeit partially, with such things as some

lesson plans, links, contact information—for quite a while. Check us out now at www.fac.teachers.ab.ca—we would welcome your ideas. All you need to do to log on is provide your teacher certificate number and some personal details, and then you will get on to the FAC Members Only site. The latest news, upcoming events, conference materials, annual general meeting notice of motion, nomination forms and **our new electronic *Fine FACTA* journal** will be posted, we hope, by the end of June.

Your executive committee, now also responsible for the upcoming conference, met at the end of May for seventeen hours. It was indeed a marathon event and we accomplished a great deal.

We are pleased to announce we have a new dance representative on the executive: Jennifer Twigg (twiggj@fsd38.ab.ca), who would love to connect with any dance teachers out there.

At the Red Deer conference, to be held November 23 to 25, we will hold elections for four positions: the president-elect, the treasurer, and drama and music representatives. If you are interested in any of those positions, the nomination forms will be on our new website soon. Please have your platform ready for elections at the annual general meeting. We will also be posting the nomination forms for honorary life membership and for the MADD Award for an outstanding arts educator.

Your executive agreed to keep many of the innovations that were introduced at the Kananaskis conference last year:

- All sessions, and there is a wide selection to choose from, will have to be pre-registered. It worked so well for the delegates who knew beforehand what



sessions they were confirmed in. It really helped us keep track of what was going on and allowed us to reconfirm speakers and preorder supplies, etc.

- The annual general meeting will again be held at the Saturday lunch, but this time we will have all of your food preferences identified on the registration form, and the entertainment will be shorter.
- The registration forms will have to be mailed, and the session preregistrations e-mailed. All sessions will be posted on the new FAC website (TNET) at www.fac.teachers.ab.ca.

What's new for the Red Deer conference?

- We are offering a preconference "special" on the Friday for beginning teachers and teachers who are newly assigned to teach the arts. The day will start with a keynote followed by two long sessions in each of the arts. All of this for only fifty dollars!
- We have introduced two more streams into the regular conference: "Technology and the Arts" and "Arts Integration," plus an additional three sessions in music. All of the sessions will require a minimum number of participants to proceed.
- The president's reception, normally held on the Friday evening, will be replaced with "something the same but different" and at another time over the weekend.

Some of the sessions confirmed are as follows:

- Art
 - Innovative Art Styles for Division II,
 - Batik Art,
 - Hand Portraiture,
 - Art for All Seasons,
 - Mosaics,
 - Silk-Screening and
 - Artist Trading Cards.
- Dance
 - Choreographing a Junior High Piece,
 - Sizzling Salsa and Latin Rhythms,
 - Ballroom Specials,
 - Dance Technique and
 - Shim Sham.
 - Laban may return.
- Drama
 - Unarmed Stage Combat,
 - Swords 101,
 - Introduction To Narrative Improvisation,
 - It's All Greek to Me: Active Theatre History,

- Make-Up on a Mini Budget,
- Shakespeare Unlocked,
- Designing Costumes,
- Character Development and
- Inspirational Classroom Drama.
- Music
 - The Music Teacher As Coach,
 - The Harmony of Carl Orff,
 - Aboriginal Music,
 - Kaze No Rhythm and
 - Alternate Methods for Teaching the Music Curriculum.
- Technology
 - Digital Storytelling,
 - Podcasting—The New Radio Show and
 - SMARTer Arts Ideas.
- Integration
 - Elementary Art—Social Studies Integration,
 - Drama, Social Studies Language Arts and Visual Arts,
 - Writing and Illustrating Books, and
 - Weaving Music into the New Social Studies Program.

Fine Facta Volume 8, no 1, will be published on the web by the end of June. Our new editor, Kathy Oviatt, gathered 15 articles for our first electronic issue. A mixture of practical ideas and advocacy documentation comprise this exciting journal. Limited numbers of printed copies will be available upon request.

We were well represented at the Beginning Teachers' Conference in Edmonton in the fall. We provided presenters in art, dance, drama and music; showcased our colourful FAC display booth; and signed up more than 30 complimentary memberships. This coming year we will again present the full deal at both Edmonton and Calgary, possibly providing a CD of lesson plans and ideas for session attendees. As well as offering memberships, we will be giving away two registrations to attend our Beginning Teachers' preconference in Red Deer.

To promote the FAC to encourage new members to join in September, we are in the stages of planning and producing a fine arts calendar. If you are aware of special dates for arts happenings in your area, please let us know and we will insert it in the appropriate date.

Christine Bouchard, our Alberta Education representative, informed us of a new video series, *I Can Make Art*, sponsored by the National Film Board. This series is available through www.learnalberta.ca.

Over the last year I represented your council at Summer Conference, Beginning Teachers' Conference, and conventions in Calgary, Lethbridge, Grande Prairie and Edmonton. I also attended both the ELAC and ETCATCA Conferences in Kananaskis and Edmonton. As your upcoming conference chair, I met in Red Deer with our venue representatives and will continue to support the committee to make this a memorable event.

On behalf of the executive, I wish you all a very safe and rewarding summer—at the cottage, travelling the world, or simply staying at home gardening or just with your feet up. Enjoy!

Thank you for all the inspirational work you have done for your students in the arts over the past year.

Warm regards
Peter



Teacher to Teacher

New Executive Members

The face of education continues to change and, along with that, here are some new faces on the Fine Arts Council executive. The council welcomes new insights and fresh ideas brought by new members to the council. If you want to contribute, or if you need information on how you can become involved in the Fine Arts Council, contact our president, Peter McWhir, at mcwhir@telus.net.

Kathy Oviatt, Editor

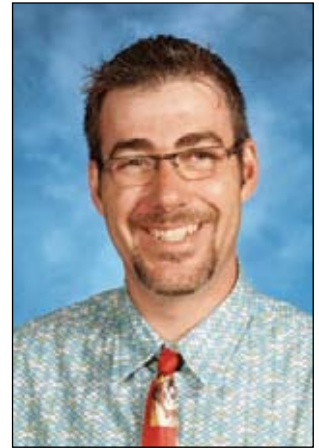


Kathy teaches elementary music and high school choral in Magrath, Alberta. She has been teaching with Westwind School Division No 74 for the past 15 years. As past president of the Lethbridge chapter of Carl Orff Canada, Kathy is an advocate for quality music education for children. She has presented workshops

throughout southern Alberta on the Orff pedagogy and is a sessional instructor at the University of Lethbridge. Kathy continues to show her dedication to the fine arts in our schools through her work and association with the Council.

Kelly Frewin, President, SARFAC

Kelly Frewin is enjoying his first term as president of the South Alberta Regional Fine Arts Council. He has been teaching in Lethbridge District 51 for six years and has been actively involved in various aspects of theatre for the past twenty years. He hopes to continue to work with others to stress the importance of arts in our education system.



Jody Swift, Drama Representative

Jody Swift grew up in southern Alberta. She graduated from the University of Lethbridge with a bachelor of fine arts and a bachelor of education. She is in her seventh year of teaching as a drama specialist and also moonlights in the English and fashion departments at her school.



Scripted Drama Assessment in a Middle School Social Studies Class

Ronald V Morris and Michael Welch

Ronald V Morris is an associate professor in the Department of History at Ball State University in Muncie, Indiana, where he teaches undergraduate and graduate students, and is the author of more than 30 articles on social studies education. Michael Welch has retired from teaching seventh-grade social studies in Ohio. He is the coauthor, with Ronald V Morris, of How to Perform Acting Out History in the Classroom to Enrich Social Studies Education and Classroom Plays for an Ethical World.

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Abstract

Students who use drama assess their work through using a science fiction essay to help them look for and make connections between times, places, people and situations. The students then use assessment guidelines to focus their ideas, stimulate their creativity and demonstrate minimum standards of excellence. Finally, students have access to scoring rubrics as they complete their projects.

Introduction: Scripted Drama Assessment in a Middle School Social Studies Class

One seventh-grade class uses drama nearly every day to improve individual student performance in social studies.¹ The students study ancient world history content, and they read and act out the script. As the story unfolds, students move into action in past times and places. Students find drama helpful in learning social studies content and developing thinking skills. Students also use structured role play to learn about people, places, and events from the past. Students empathize with characters from history in these events and spend time anticipating their actions and predicting their next words.

Procedure

Since students have multiple experiences with drama in social studies class, the teacher draws upon these experiences to help students determine the next events in the lessons. The teacher uses assessment to help guide the instructional planning.² For the action to unfold in the classroom, substantial preparation is required from the teacher before instruction. First the teacher decides what instructional objectives to include

in teaching a unit. After reading multiple sources, the teacher writes guiding questions to consult in preparing the script. The questions range from factual recall to evaluation; then the teacher creates the script. The teacher injects the guiding questions into the margins of the play to get the students to reflect and discuss what they have read. Before the students start reading and acting out the play, the students discuss the evaluation rubric. Next, the class chooses roles through a student-run lottery and acts out the play. At the conclusion of the play, the students form groups and discuss the scoring rubric their teachers prepared and how they might make use of it. During these discussions students exchange ideas about the content, examples and process they might use in answering the questions. Many times students work in small groups and exchange answers with several groups before debriefing with the whole class.

Example

Students became the character every day from the beginning of the unit to the assessment, and in a series of role plays students learned about the Age of Exploration. In this particular example the students learned

about Spanish, French, Dutch, Portuguese and English exploration of the Americas. The topics of the chapters included early explorers, Cortes and Mexico, Spanish explorers, and searching for the Northwest Passage. After the students acted out a scripted play on this topic, they were given the following science fiction article to read.

Exploring the Planet AMI

In the year 2050 one political nation exists on the surface of Earth, and all Earth people believe that only democracy allows each person a meaningful life. However, twenty billion people pack onto Earth's very crowded artificial islands, so that they do not waste land. The people of Earth find minerals scarce, especially iron and uranium.

People explored space for the last quarter-century. No intelligent life other than that of Earth exists in the solar system, but a recent discovery led to a new way to power space ships, allowing people to travel to the stars. The advanced technology of 2050 also allows a space ship to monitor what occurs on a planet without people from Earth actually going down to it.



Last year, in 2049, scientists discovered a new planet, AMI; this planet seems like a possible solution to the people of Earth's problems. The planet resembles Earth in its climate, atmosphere, plants and animals; it contains unique things, too. The planet AMI possesses large amounts of natural resources Earth lacks, including iron, uranium, zinc, gold and many more minerals. Even better, many people dot the surface of AMI. The electronic technology shows that the people of AMI resemble the size of sixth-grade students on Earth, but have absolutely no hair, and usually have yellow, cat-like eyes. They also manifest different shades of skin pigmentation ranging from light blue to very dark indigo.

The people of AMI live in many different cultures. Twenty separate cultures represent the northern continent, and most of these use a hunting and gathering economy. Some of these cultures also farm a crop not farmed on earth. This crop, called JO, seems to grow easily and produces a great deal of food; it might make an excellent crop to help feed Earth's ever-growing vast population. These people of the northern continent use a very simple technology; they use stone tools and weapons only. They base their society on tribes that include about 1,000 people, and a few people called Dreamers seem to rule the tribes. These Dreamers do not hunt, gather, or farm JO; instead they act as the priest and the doctor to their people. When a depressed, sick or worried person goes to the Dreamer, the Dreamer dreams about the patient to find a cure. The dreams of these Dreamers seem to become real in some way the scientists of Earth do not understand. The tribes regard these "real" dreams as their group's most advanced technology. Each tribe prizes its Dreamer's skills, and people often use the real dreams in their attacks on each other.

The dominant culture of the southern continent organizes its culture around a much larger social unit—the kingdom. The Royal Dreamer rules this southern kingdom and lives in a huge palace covered with jewels. The people possess many diamonds, but the people also use two other kinds of jewels not found on Earth. These jewels are very beautiful and glow like cold fire. The Royal Dreamer eats only from gold dishes and drinks a rare drink

not found on Earth, made from the red berry of a small bush. He and his 2,000 wives wear lovely clothes that look like the constructions of clouds.

The large city with gleaming white and blue buildings surrounds his palace. Busy people all fill the market place, buying and selling many different, well-made trade goods. Although these people live in a large, beautiful city, they use only stone weapons. They enjoy war, however, and the Royal Dreamer sacrifices a human being every morning from one of the tribes he conquered. He believes the blood of the sacrificed person that he drinks helps his dreams become real. Recently, a nightmare woke the Royal Dreamer from a deep sleep, and the dream returns night after night, showing ugly new gods coming from the sky. He fears these ugly brown, white and yellow gods may destroy his blue people and the whole world he knows.

The students get into small groups and discuss their opinion of the story, and then the students share with the whole class their ideas about the story. Next, the students get the series of questions that guide their evaluation of this unit.

The assignment rubric helps the students to consider topics and construct a response. The students integrate their knowledge of history and written communication, and incorporate new knowledge to form a response.

Assignment Rubric

As a member of the Earth ship watching the blue people of AMI from near their moon, you fulfill your duties as a historian. As a result of past human failures to learn from their past by 2050, a professional historian goes on every space expedition; the historian's duties include writing a report to the captain.

In the historian's report, the captain expects to find the following information. Please consider both technology and motivation in the first paragraph in answering these questions.

- I. How does the Earth expedition to AMI compare to the European explorers who sailed to America just after 1492?
 - A. Please consider economy, social organization and technology in the second paragraph when answering these questions:

Teacher to Teacher

- II. How does the culture of AMI's northern continent compare to the culture of North America before 1492?
- A. *Please consider economy, social organization, belief systems and technology in the third paragraph when answering these questions.*
- III. In what way is the main culture of the southern continent of AMI like the culture of the Aztecs of Mexico before 1492?
- IV. The fourth paragraph should answer these questions:
- A. *When the Europeans contacted the hunting and gathering culture of America, what happened?*
- B. *When the Europeans met the advanced Mexico culture, what happened?*
- C. *What effect did this have on the Native American peoples?*
- D. *What effect did this have on the Europeans? Why?*
- V. In the last paragraph, answer these questions:
- A. *Considering all this history, make a recommendation to the captain. Should the captain order the spaceship to land? Why or why not?*
- B. *If the recommendation is to land, where should the ship land? Why do you recommend this spot?*
- C. *What precautions should a landing party take? Why do you recommend this?*

Students first use historical precedent to interpret future possibilities; they then focus their response around concepts. Finally, students must evaluate situations and make recommendations. Students speculate about ideas to create products that require the students to examine and interpret controversial or value-based issues.

Scoring Rubric

Students may use the scoring rubric while they construct their responses. The students demonstrate that they master basic minimum competencies in comprehension and thinking.

- I. How does the technology of Earth expedition to AMI compare to the technology of the European explorers who sailed to America just after 1492?
- _____ (+3) Three or more examples
- _____ (+2) Two examples
- _____ (+1) One example
- _____ (0) No examples

- How does the motivation of the Earth expedition to AMI compare to the motivation of the European explorers who sailed to America just after 1492?
- _____ (+3) Three or more examples
- _____ (+2) Two examples
- _____ (+1) One example
- _____ (0) No examples
- _____ (+6) Total

- II. How does the culture of AMI's northern continent compare to the culture of North America before 1492?
- _____ (+3) Three or more examples
- _____ (+2) Two examples
- _____ (+1) One example
- _____ (0) No examples

Economic

- _____ (+3) Three or more examples
- _____ (+2) Two examples
- _____ (+1) One example
- _____ (0) No examples

Social Organization

- _____ (+3) Three or more examples
- _____ (+2) Two examples
- _____ (+1) One example
- _____ (0) No examples

Technology

- _____ (+3) Three or more examples
- _____ (+2) Two examples
- _____ (+1) One example
- _____ (0) No examples
- _____ (+12) Total

- III. In what way is the main culture of the southern continent of AMI like the culture of the Aztecs of Mexico before 1492?
- _____ (+3) Three or more examples
- _____ (+2) Two examples
- _____ (+1) One example
- _____ (0) No examples

Economy

- _____ (+3) Three or more examples
- _____ (+2) Two examples
- _____ (+1) One example
- _____ (0) No examples

Teacher to Teacher

Social Organization

- ____ (+3) Three or more examples
- ____ (+2) Two examples
- ____ (+1) One example
- ____ (0) No examples

Belief Systems

- ____ (+3) Three or more examples
- ____ (+2) Two examples
- ____ (+1) One example
- ____ (0) No examples

Technology

- ____ (+3) Three or more examples
- ____ (+2) Two examples
- ____ (+1) One example
- ____ (0) No examples
- ____ (+15) Total

IV. When the Europeans contacted the hunting and gathering culture of America, what happened?

- ____ (+3) Three or more examples
- ____ (+2) Two examples
- ____ (+1) One example
- ____ (0) No examples

When the Europeans met the advanced Mexico culture, what happened?

- ____ (+3) Three or more examples
- ____ (+2) Two examples
- ____ (+1) One example
- ____ (0) No examples

What effect did this have on the Native American peoples?

- ____ (+3) Three or more examples
- ____ (+2) Two examples
- ____ (+1) One example
- ____ (0) No examples

What effect did this have on the Europeans? Why?

- ____ (+3) Three or more examples
- ____ (+2) Two examples
- ____ (+1) One example
- ____ (0) No examples
- ____ (+12) Total

V. Should the captain order the space ship to land? Why or why not?

- ____ (+3) Three or more examples
- ____ (+2) Two examples
- ____ (+1) One example
- ____ (0) No examples

If the recommendation is to land, where should the ship land? Why do you recommend this spot?

- ____ (+3) Three or more examples
- ____ (+2) Two examples
- ____ (+1) One example
- ____ (0) No examples

What precautions should a landing party take? Why do you recommend this?

- ____ (+3) Three or more examples
- ____ (+2) Two examples
- ____ (+1) One example
- ____ (0) No examples

Please consider Earth's need for more resources and new crops to feed Earth's vast population.

- ____ (+3) Three or more examples
- ____ (+2) Two examples
- ____ (+1) One example
- ____ (0) No examples

Consider how much this expedition cost and how it looks if you do not land.

- ____ (+3) Three or more examples
- ____ (+2) Two examples
- ____ (+1) One example
- ____ (0) No examples

Consider what might happen to the blue people and to the Earth people if landing does occur.

- ____ (+3) Three or more examples
- ____ (+2) Two examples
- ____ (+1) One example
- ____ (0) No examples
- ____ (+18) Total
- ____ (+63) Total

Students complete each area of assessment with a rubric. The students know where to develop their thoughts and where to provide multiple examples; students must consistently apply their historical

knowledge to future situations. The teacher guides the students toward developing thoughts in certain areas, but the students have multiple ways to elaborate and improvise within the expectations.

Conclusions

In this example of assessment, students in a seventh-grade class learn about world history, and they combine that knowledge with a science fiction essay. They use an assignment and a scoring rubric to apply their knowledge. Many times teachers say they ask students to see connections between people, places, events, present political situations and historical occurrences; however, teachers rarely assess these connections or abilities to see interactions. By asking students to make connections in an assessment to science fiction, the educational community can perceive how well the students transfer knowledge in problem situations. When students work to find solutions to problems, they must use real-life skills and demonstrate how they will use them now and possibly in the future.

Curriculum development and assessment rubrics remain contingent upon the initiative of teachers to read multiple sources before constructing materials. Teachers have this time to read and create imaginative methods, but they must have creative time to study their topics of individual interest. Some teachers will want to work in groups for mutual support in exploring common interests. The learning and working style needs to remain the choice of the teacher, but time for individual study needs to remain present. Teachers need individual and group planning time, and the more people they work with, the more time they will need to plan.

Teachers need to help students look for connections between historical events and situations where students may apply their knowledge of the past. Teachers need to look at current events and future scenarios; both provide examples for comparison. The teacher uses assessments to help the students understand what they learned in social studies class. In an assessment process such as the one described here, students who

use social studies can see connections across time. Students use enactive experiences and then continue to interpret, think and talk about the experiences through the assessment.

Notes

1 See Mattioli and Drake (1999), Morris (1997, 1998, 2001a, 2001c, 2002, 2003a, 2003b), Morris and Hickey (2003), Morris and Welch (2000) and Welch and Morris (2001).

2 See Kaufman (1991), Mathison (1997) and Morris (2001b).

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Weaving Assessment into the Arts

Christine Caton

Christine Caton is director of education for Young Audiences of Oregon & SW Washington. This article is reprinted from Artworks! Newsletter with permission from the publisher, Young Audiences of Oregon & SW Washington, and is available online at www.ya-or.org and www.arts4learning.org. Minor changes have been made to spelling and punctuation to conform to ATA style.



Today, students have to learn more, do more and show that they know more in order to meet learning benchmarks and academic standards in core curricula, including the arts. It is classroom teachers and teaching artists—separately and in collaboration—who assist them in this sometimes daunting challenge. With this in mind, educators are continually searching for arts assessment strategies that are simple, relevant and informative.

In spring 2003, Young Audiences visual artist Peggy Ross returned for a second year to work with six third-grade classes at Hockinson Intermediate School in Brush Prairie, Washington. In a five-session frame loom weaving residency, students learned basic weft weaving connected to Anasazi and Navajo culture, customs and beliefs. They also learned about wool and cotton fibre processing and spinning, and natural dyeing techniques.

As always, Peggy's teaching supported arts standards and embraced clearly set goals for students as well as for herself. But this time she incorporated into her teaching something she'd never tried before. She wove a simple assessment strategy into the process, and her findings were dramatic, enlightening and affirming!

Inspired by an approach taught by arts educator Annie Painter, at a Young Audiences professional development workshop, Peggy used the medium of drawing as her assessment technique. Because drawing is a child's first symbology, it's a natural for assessing both prior knowledge as well as what is learned as a result of arts experiences and processes. An added value to this approach was that Peggy discovered how effective a teacher she really is. Here are the simple steps she took.

Day 1: During the first five minutes of class, students were given a 5" × 8" piece of white paper and were asked to make a drawing of what they knew about weaving. They were told that if they didn't know anything about weaving, to simply write the word *weaving*. If they didn't know how to spell it, they were to guess.

Day 5: At the end of the residency, after students had finished their weavings, they were again given paper and asked to make another drawing of what they now knew about weaving.

A comparison of first and last day drawings wowed even the students. They went from knowing literally nothing about the art form to filling the paper with intricate details about tools, fibres and process. Some of the writing accompanying the drawings communicated a transformation in a child's approach to creating art. After his last session, third-grader Jordy wrote, "I learned that you should never say mean things about your work."

Other drawings affirmed Peggy's decision to reduce the number of weaving techniques she taught in order to accommodate younger learners. With this adjustment, students were more relaxed, had more time for creative expression and felt more successful. Peggy photocopied each self-assessment drawing for her own records and left the originals with teachers to use as journal entries or to display with the students' finished weavings at their art show.

The wonderfully rich weavings students created were the true testament to their success. One hundred and forty-four third-graders put their newfound skills and knowledge to work as they used tools to weave fibres under and over to create beautifully patterned pieces of fibre art.

Assessments don't have to be complicated or a burden to conduct. They needn't call for lots of extra paperwork or anecdotal note taking. The self-assessment strategy Peggy wove into her residency was simple, taking all of ten minutes and using just paper and pencil. It was relevant to the third-grade social sciences and math curriculum, and it informed the students, the teaching artist and the classroom teachers about the effectiveness of the teaching and learning that had taken place. Peggy's assessment was simple, relevant, informative and powerful. It's no wonder that Hockinson Intermediate wants her back again!

Peggy Ross has a bachelor of arts degree from Lewis and Clark College in Portland, Oregon, and has been on the Young Audiences artist roster since 1997. In addition to her residency work, she is the art director for MITCH Charter School's nonprofit arm, Learning Adventures, and a teaching artist for the Arts for Learning Cohort at Portland State University. Peggy exhibits her work in a variety of venues and has been a member of Portland Handweavers Guild for 16 years.

Weaving Resources

Weaving Website

www.harrisville.com. Weaving tools and kits for children, quality products and school discounts.

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Shuttle Spindle & Dye-pot.

The Composer's Notebook: A Storyline

Carla Wilson

Carla Wilson is third flute and piccolo with the Oregon Symphony Orchestra. Her work as a teaching artist began as an extension of her involvement in the education programs of the Oregon Symphony. Wilson has developed curriculum for the Oregon Symphony and the Galef Institute, which is a nonprofit organization that develops research-based, field-validated school improvement services and products. She holds a bachelor of music education from Lewis and Clark College in Portland, Oregon, and a master's of music in flute performance from Northwestern University. She may be contacted by e-mail at piccaflute@hotmail.com.

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Inspired by my introduction to Scottish Storyline two years ago, I approached Jeff Creswell, a sixth-grade teacher at Portland's Metropolitan Learning Center (MLC), about designing a storyline that integrated a study of the Columbia Gorge with music composition. Neither of us imagined the impact this storyline would have on the school community. Everyone involved witnessed the magic that took place as music and curricular learning became seamlessly woven together. What emerged from our partnership? A multi-disciplinary unit with limitless possibilities for

curriculum integration. Teachers who now have a renewed commitment to the arts as an essential tool for learning. Students who have explored in authentic ways how sound is used to compose music inspired by the world around us. And parents who shared in and celebrated our music.

The Residency

The student compositions were inspired by their study of the Columbia Gorge and modelled after the *Grand Canyon Suite*, by Ferde Grofé. Working with four classrooms of fourth- through sixth-graders, we identified the areas of study as

- the geologic formation of the Gorge,
- scenic places and their Native American myths,
- modes of transportation and
- explorers and Native Americans of the Columbia River.

The 15 short compositions written by the students and teachers were combined to form a larger work, the *Columbia Gorge Suite*. The culminating event was a performance of the suite by an ensemble of six professional musicians, two of whom, Tylor Neist and Laird Halling, assisted me with teacher development, classroom presentations and preparation of the score and music for the performance. Paula Cremer, a teacher at MLC, was our conductor.

Teacher Development

We selected the legend of Tsagalala, the guardian of the Gorge, as the source of inspiration for a teachers'

composition. Taking the teachers through the compositional process strengthened the project in several ways: it allowed us to test and pilot the process we would use with the students, it provided the teachers with an understanding of composition that allowed them to help facilitate our classroom work with the students, and it was an important team-building activity that created ownership and commitment. The success of their composition, *She Who Watches*, inspired us all and gave us something tangible to share with the students as a model for their own composition process. When students doubted their ability to compose, teachers were able to share their own challenges and successes as composers.

The Composers

The goal of our first storyline episode was to build a music vocabulary and to introduce students to the process of music composition. The first lesson was to write and perform a short composition using a sheet of paper as our instrument. We identified the musical triangle of composer, performer and listener and defined the role each plays in creating music.

Our second lesson was to create a picture composition called a *soundscape*. Thomas Moran's painting *The Chasm of the Colorado* was inspiration for our musical composition depicting a thunderstorm. Students chose elements in the painting they wanted to represent in sound, identified picture symbols for those sounds, organized and drew those picture symbols on the mural to represent the sequence of sounds within the thunderstorm, and selected sounds from a variety of homemade instruments to represent the symbols in the soundscape. Using the soundscape as a musical score, the students performed the composition while Tylor or I conducted. Students also had the opportunity to conduct as time allowed.

Inspiration

The teachers planned a field trip for the students to visit scenic places along the Gorge. We wanted the students to see it through the eyes of a composer and record their impressions. The students were asked to use all their senses in imagining the history, exploration and settlement of the Gorge. Each class was then divided into groups of four to five students to begin the

process of drafting, critiquing, designing and constructing the murals that would reflect their study of the Gorge and provide the inspiration for their movement of the suite.

The Craft of Composing

We listened to the *Grand Canyon Suite* to analyze how Grofé used musical elements to reflect his impressions of the Grand Canyon. What musical ideas, or motifs, did he use to represent images through sound? What does the music look like? What instruments did he use? What can we tell about the music by looking at the score?

We introduced a simple notation system and asked students to compose short melodic motifs for the characters found in the book *The Hunter and the Animals*, by Tomie dePaola. This lesson required students to draw upon their learning from the previous activities and set the stage for the next episode in our storyline. Tylor and I performed the motifs for the students, asking them to indicate which instrument they wanted for their character and the tempo of their motif.



Composing Our Movement

The students were introduced to the six instruments for which they would be composing. The ensemble musicians demonstrated their instruments and talked about the information composers need to have when writing for them. They then performed the teachers' composition, *She Who Watches*, and explained the composition process the students would use.

It was then time to compose! After having researched and explored the topic of their classroom study, the student groups began writing the story they wanted to tell through their music. They discussed and agreed on the images from their mural they wanted to represent in sound and the instruments they would use to represent those images, then created a soundscape to provide the form and structure for their composition. We then guided each student in writing a motif for his or her assigned image.

Revision and Rehearsal

We sequenced the motifs for each movement using the soundscape as a template. The students listened to computer-generated CDs of their compositions while we noted their suggestions for minor revisions. For one group, this meant a serious look at the way they wanted the cellist to slide up and down the string to represent a winding train track. To create a professional-looking program for the concert, we asked each class to give their movement a title and to write a short paragraph about it for the program notes.

The six professional musicians performed the entire *Columbia Gorge Suite* for the students at the dress rehearsal. The excitement was electric as the students heard their compositions performed by the ensemble for the first time. Any doubts we had about students recognizing their motifs or having opinions about how they were performed were put to rest when, after the dress rehearsal, one student informed us that the cymbal roll in her group's movement needed to start fast and get slower, the opposite of how it had been performed. A true composer!

The World Premiere

A standing-room-only crowd heard the world premiere of the *Columbia Gorge Suite*. Students had prepared displays for the lobby documenting the

progression of learning, and parents were invited to visit the classrooms. In the words of one student, "The performance was wonderful. You all did a great job, and everyone loved it. My parents could not stop talking about it. They said you helped us in so many more ways than just music. I was so sad when the performance was over, and I wanted it to last forever."

Reflection

Throughout the storyline, students reflected on their learning and documented their work through journal entries, drawings and photographs. Their composer's notebook included the completed soundscapes and scores with a computer-generated CD of the *Columbia Gorge Suite*.

Meeting the Benchmarks

The power of the storyline method is its ability to integrate curriculum in a meaningful way for children. However, as teachers, we must be sure that we are teaching the content that we are required to teach. Below is a short-listing of some of the general content standards covered in this integrated unit that apply to fourth-, fifth- and sixth-grade benchmarks.

The Arts

- Apply artistic elements and technical skills to create, present, and/or perform works of art for variety of audiences and purposes.
- Communicate verbally and in writing about one's own artwork.
- Explain and analyze works of art, applying knowledge of technical, organizational and aesthetic elements.
- Respond to works of art, giving reasons for preferences.
- Describe how historical and cultural contexts influence works of art.

Language Arts

- Listen to and read informational and narrative text.
- Increase word knowledge through systematic vocabulary development.

- Read to perform a task.
- Listen to and read literary text.
- Prewrite, draft, revise, edit, and publish across the subject areas.
- Write for different purposes and to a specific audience or person, adjusting tone and style as necessary.
- Write narrative, expository, and persuasive texts using a variety of written forms—including journals, essays, short stories, poems, research reports.
- Communicate supported ideas across the subject areas using oral, visual, and multimedia forms in ways appropriate to topic, context, audience, and purpose.
- Listen critically and respond appropriately across the subject areas.

Social Studies and Science

A variety of content standards were covered in social sciences (history and geography) and science, depending on the emphasis of the class's chosen topic about the Gorge—transportation, Native Americans and explorers, geology, or sacred places.

Career-Related Learning

- Personal Management: Exhibit appropriate ethics and behaviours in school, community and workplace.
- Problem Solving: Apply decision-making and problem-solving techniques in school, community and workplace.
- Communication: Demonstrate effective communication skills to give and receive information in school, community and workplace.
- Teamwork: Demonstrate effective teamwork in school, community and workplace.
- Career Development: Research and analyze career and educational information.

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Professional Growth Through the Arts

Christine Caton

Christine Caton is director of education for Young Audiences of Oregon & SW Washington. This article is reprinted from Artworks! Newsletter with permission from the publisher, Young Audiences of Oregon & SW Washington, and is available online at www.ya-or.org and www.arts4learning.org. Minor changes have been made to spelling and punctuation to conform to ATA style.

“I hear and I forget. I see and I remember. I do and I understand.”

This Chinese proverb, often used in connection with children’s learning, also applies to the lifelong journey that educators travel to enrich their personal and professional lives. School districts recognize the importance of professional development for teachers, and with the demands of *No Child Left Behind*, honing of the skills and knowledge that make for a quality teacher is essential.

Because of limited funds and time combined with the increasing emphasis on performance assessments, districts often choose to focus their professional development dollars on traditional core curriculum, especially math and literacy. The Camas School District in Camas, Washington, took another, rather visionary approach to teacher growth by looking to the arts as a way to strengthen both teaching and learning.

One District’s Approach— Customized, Developmental and Practical

What makes a teacher professional development experience worthwhile? For primary teacher Wendy Gummer, it is “the chance to step out of our boxes, to step out of our classrooms and be re-inspired. But what is really important is whether those new ideas can be applied tomorrow. The ideas must be practical.” Taking that to heart, during the 2004/05 school year, Washington’s Camas School District approached K–6 teacher professional development in the arts in a customized, developmental and practical way.

Working with Young Audiences staff and three exemplary teaching artists, Camas’s assistant superintendent Tanis Knight put together a professional development package that honours K–6 teachers’ major wish—to learn the district’s newly adopted art curriculum and to begin using it. Recognizing that one size does not fit all, the workshop designers developed separate experiences for primary, middle and upper elementary grades.

Primary Grades K–2: Linking Visual Art and Literature

“Inspiring children to read by looking at the art in books or creating their own art to express the themes in the books are powerful tools for any young mind,”

Teacher to Teacher

said Young Audiences visual artist Margaret Benoit. Her workshops for teachers of the early learners (kindergarten through second grade) linked illustrated children's books with a specific medium to explore an art concept.

For example, after Benoit read aloud *Arrow to the Sun*, the group discussed the theme of the sun's creation and looked at Gerald McDermott's powerful illustrations, many of them excellent examples of the concept of radial symmetry. Following a short demonstration of the use of oil pastels and the technique of watercolour resist, teachers created their own beautiful sun, leaving the workshop with an immediately replicable lesson for their students.

The following is an overview of the content of Benoit's two half-day workshops:

Literature: *Harold and the Purple Crayon*,

by Crockett Johnson

Theme: Creating your own world

Art Concept: Line

Medium: Purple crayon

Art Lesson: Warm-up line drawings

Literature: *Purple, Green and Yellow*, by Robert Munsch,

art by H el ene Desputeaux

Theme: Using materials properly

Art Concept: Shapes and composition

Medium: Scented watercolour markers

Art Lesson: Group free-form murals

Literature: *The Hat Seller and the Monkeys*, retelling and art by Baba Wague Diakit 

Theme: African art

Art Concept: Repetition and pattern

Medium: Paper and pens

Art Lesson: Patterned African hats

Literature: *My Many Colored Days*, by Dr Seuss, paintings by Steve Johnson and Lou Fancher

Theme: Emotions and feelings

Art Concept: Opposites, colour and space

Medium: Construction paper

Art Lesson: Positive and negative collage

Literature: *The Rainbow Goblins*, by Ul de Rico

Theme: Capturing the colours of the rainbow

Art Concept: Mixing colours

Medium: Watercolours

Art Lesson: String lasso



Literature: *Arrow to the Sun*, adapted and illustrated by Gerald McDermott

Theme: The creation of the sun

Art Concept: Radial symmetry

Medium: Oil pastel

Art Lesson: Watercolour resist technique

Literature: *The Big Orange Splot*, by D Manus Pinkwater

Theme: We all don't have to be the same

Art Concept: Creativity

Medium: Mixed media

Art Lesson: Crazy neighbourhood houses

In culmination, and to practise applying what they'd learned, teachers brought a favourite book from which to work and experimented with various media to create an original classroom lesson, keeping in mind theme, art concepts, skills and medium.

How did the teachers respond to this approach to professional development? "The new art curriculum we have adopted is excellent in its coverage of the elements and principles of art, but now we have some samples to supplement our new materials," said teacher Julie Della Valle. "I feel more confident after these workshops."

In addition to being better prepared to teach art in their classrooms, these K-2 Camas teachers gained practical ideas in how to use art to teach other core curricula. Analyzing line, shape, volume, pattern and repetition introduces students to the observational skills needed in the sciences. Colour theory supports learning about prisms and the colour spectrum. Pattern repetition helps bring an abstract mathematical concept into a visual reality. And exploring organic and geometric shapes is a natural introduction to geometry.

Middle Elementary Grades 3-4:

Art as a Catalyst for Writing

Arts educator and curriculum developer Susy Watts guided third- and fourth-grade teachers in an examination

of famous works of art to stimulate creative thinking and a deeper understanding of the writing process. Participants focused on writing and visual art concepts such as metaphor, beginning/middle/end, voice, characterization and description. This exploration gave teachers new pathways for their students who have difficulties learning to write in traditional ways. “Teachers and their students use new ways of thinking and unlock doors that might previously have blocked learning,” said Watts. “Describing what is seen is both a visual analysis process and a writing process.”

The two half-day workshops led by Watts were scheduled a month apart, a timeline that worked well for all concerned. “It not only gave the teachers time to work in practice lessons for their students, but gave me time to make some adjustments to my second workshop to meet the unique needs of these particular teachers,” Watts said.

Watts led a variety of fun and challenging activities, each of which included a problem to be solved, shared writing and art vocabulary, target learnings (standards) and assessment criteria. For example, in “Eye Warm-Ups for Seeing, Talking and Writing,” the teachers/learners were prompted to take a visual inventory of an art work to inspire descriptive language about colour, shape and line to support their personal viewpoints. Using personification, they then asked the art questions such as, “What message are you trying to convey?” or “What might you look like if your shape, form or texture were different?” This unique approach stimulated imagination, awakened the senses, guided analysis and provided a focus for a writing response. The activity resulted in strong evidence of learning—a writing sample of descriptive words, lists and questions.

For examples of these lessons, log on to the Arts for Learning website and do a Quick Search. Click on Arts/Organization Institution” and type in “Susy Watts.” In the green box will be a number of lessons posted on the site.

Upper Elementary Grades 5–6: Drama and Technology

Young Audiences theatre artist Betsy Richard, who resides in Michigan, and Director of Education Christine Caton, who lives in Oregon, designed an innovative four-month-long professional development series for the fifth- and sixth-grade teachers at John David

Zellerbach Elementary, in Washington. The teachers have a keen interest in technology and voiced a desire to learn more about drama. These opportunities addressed both.

The series began in early November with a three-hour drama workshop. Visiting artist Richard introduced teachers to the world of drama through exercises they could immediately transfer to the classroom. Teachers had to take some risks, jumping from warm-up games into more challenging problem-solving activities. Alone, in pairs and in small groups, they experimented with mirroring, character walks, scene building, improvisation, pantomime, sculpting and tableau, all the while developing concentration, observation, cooperation, trust and team-building skills.

In small teams the teachers created a pantomimed scene playing tug-o-war. “The teachers did an awesome job creating and pantomiming very specific characters as well as finding ways to include all members of the team, even someone with a temporary disabling injury,” said Richard. “The scenes had humour and humanity.” Throughout the workshop, she gave examples of how creative drama activities could be used to teach other core content areas, particularly social studies and language arts.

For two days following the workshop, Richard worked in eight classrooms, demonstrating how to use creative drama exercises with children. Clusters of three teachers shadowed her in each classroom, debriefing afterward to ask her questions and talk about how to apply what they observed to their own teaching.

Examples of curriculum connections made through creative drama

Writing: Using tableau, a frozen picture, students individually explored the writing concepts of beginning, middle and end. Through improvised movement and sound, they then transformed their frozen pictures into moving images of concrete ideas, making frozen rivers, rocks, trees and waterfalls “move” and “vocalize.” The activity culminated with groups of four creating a “natural disaster” that began with a frozen picture, used movement and sound to transform its shape, and ended in another frozen picture. This activity illustrated how tableau can help students imagine and create a simple plot, which can ultimately be translated into writing whole scenes or vignettes.

Reading: Students reading Kate DiCamillo’s book *Because of Winn-Dixie* expanded upon a key event in the story—caring for a dog. In a large circle, using improvised pantomime, Richard coached the students in bathing their dog: they used a hose and soap, dried him off, and then sat with the companion’s head in their laps. “The faces of the children around the circle as they pantomimed their action and the discussion following proved they were engaged and totally absorbed,” said Richard. “It sparked a lot of thoughts and feelings about the piece of literature, the characters and the theme.”

Social Studies: A class that was studying the early explorers prompted Richard to have the students imagine working aboard a ship, using pantomime and tableau to bring historical characters to life. Students pulled the heavy ropes and manned the sails in both foul and fair weather. They secured the rope of the sails and imagined how it might be to sway back and forth on a ship’s deck in the vast ocean. The activity culminated with small groups creating tableau scenes of their characters on board ship. Each student improvised a line and an action and briefly brought their tableau to life. This simple technique helps students gain a perspective on historical happenings and what life was like long ago.

Over the next month, Richard challenged the teachers to try what they had learned with their own students and connect with her in Michigan through the Internet. According to one JDZ teacher, this concept of following a hands-on workshop with demonstration in the classroom and one-on-one online consulting with the artist “was an efficient use of time. I liked the fact that first we experienced it, then observed Betsy modeling it and finally had the opportunity to work with our kids.”

In December in the school’s computer lab, Christine Caton presented a hands-on orientation to the Arts for Learning website, an online resource tool about learning and teaching in and through the arts. She set up an online community of learners with the JDZ teachers. An innovative feature of the website is the *my a4l group* space, a vehicle for users from various regions to work together online. Everyone in the group can post questions and provide peer support as they experiment with teaching drama in their classrooms. The *my a4l* group members have the ability to download documents from and upload documents onto the space, so the whole group can review a variety of ideas, activities and lessons, experiment with them in their own classrooms, and then share the results with peers online.

From these creative approaches to professional development, teachers in Camas learned that the arts are a powerful learning tool—for both their students and themselves.

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Literacy Through the Arts

Christine Caton

Christine Caton is director of education for Young Audiences of Oregon & SW Washington. This article is reprinted from Artworks! Newsletter with permission from the publisher, Young Audiences of Oregon & SW Washington, and is available online at www.ya-or.org and www.arts4learning.org. Minor changes have been made to spelling and punctuation to conform to ATA style.

Q: What comes to mind when you hear the word literacy?

A: You know, the things kids learn at an early age—reading, writing, comprehension.

Q: Is that all? What about speaking, listening, nonverbal communication?

A: Oh, I clump all of that under language arts.

This was part of a quick interview I had with a relatively new elementary school teacher. Although this is a common perspective on literacy, I don't agree. It is unwise to clump literacy—reading, writing, speaking, listening, nonverbal communication, vocabulary, handwriting, spelling, comprehension and more—into simple categories or one content area. It is a challenge for learners to come to know and understand these literacy components during their formative years. To become proficient in them can take a lifetime.

Students today have many distractions that can slow their journeys to literacy. Television, video games, radio, computer chat rooms, the Internet—the now deeply rooted trappings of our popular culture—all have the potential of keeping kids from learning and practising the steps to becoming literate. Once-everyday activities

such as reading a book, handwriting a letter or speaking clearly with meaning now seem relics of the past and have become difficult tasks for some kids to master. I can't remember the last time I heard my fourteen-year-old daughter say more than three sentences in a row that weren't peppered with the word *like*!

Whether the students we teach are gifted or at risk, whether they speak English, Spanish or Russian as their first language, whether they have been diagnosed with ADD or dyslexia, it's our responsibility as educators to find their best pathway to literacy. Often, an effective way is through the arts. Sometimes the *only* way is through the arts.

In May 2002, the Arts Education Partnership (AEP) published cutting-edge research all educators should examine. AEP is a national coalition of arts, education, business, philanthropic and government organizations that demonstrates and promotes the essential role of the arts in the learning and development of every child and in the improvement of America's schools. The publication *Critical Links: Learning in the Arts and Student Academic and Social Development*, edited by Richard J Deasy, cites 62 studies showing that students who learn music, dance, drama, visual and multi-arts often transfer that knowledge to developing academic and social skills. In his overview essay, "The Arts and the Transfer of Learning," Dr James Catterall, a professor from Imagination Group at the University of California at Los Angeles, defines *transfer* as "instances where learning in one context assists learning in a different context." He reinforces the argument that learning in the arts and through the arts creates capabilities or motivations that manifest themselves in non-arts learning. In his essay, Figure 1 is an inventory of the effects of learning in the arts on academic and social skills. Note how many of these skills relate to literacy.

Classroom Activities in Literacy

Below are activities that several Young Audiences teaching artists have used in their work with young people to help them come to know the skills and knowledge that are part of literacy. These activities are easily replicable in the classroom. The focus here is not necessarily on learning the art form, but rather on using it as a learning tool for developing specific literacy skills. Try them in your classroom. Your students will have fun while they learn!

Literacy Through Dance (K–2)

Pamela Norris

Pamela Norris is a Young Audiences dance teaching artist.

Activity Title: Exploring prepositions through movement

Content Area: English/language arts

Common Curriculum Goals:

- Increase word knowledge through systematic vocabulary development (K)
- Demonstrate knowledge of spelling, grammar, punctuation, verbs (1st/2nd)

Grade-Level Foundations: Vocabulary (K); writing: conventions; grammar (1st/2nd)

Activity Learning Process

Each successive part increases in difficulty. It may be necessary for the teacher to model each task. Use a drum or other percussive instrument for signalling and control. Push desks aside to clear an open space in which the children can move freely.



Part 1

The teacher

1. writes on the board and demonstrates through action the prepositions *on, beside, over, under, behind, in front of, between* and *around*;
2. invites students to select an object such as a book, toy or block;
3. instructs students to: “Place your object *over, under, beside, in front of* you. Put it *between* your hands; put your legs *around* it.”

Part 2

The teacher tells students:

1. “Place your object somewhere in the open floor space. When I call out an *action verb* (walk/hop/jump/skip/gallop/stomp/tiptoe), move that way through the open space. When you hear the drumbeat, freeze. Do not touch any other person or object while you’re moving or when you freeze.”
2. “When you hear the drumbeat again, move in one or more of the ways you just explored, such as galloping, hopping or jumping. When the drum stops, freeze either *on, beside, over, under, behind, in front of* or *around* your object. It’s your choice. Read the prepositions listed on the board if you need to.” Repeat this several times.
3. “When I come around and tap you, tell me which preposition you’re doing.”

Part 3

After dividing the class into pairs of students, and each pair into #1 and #2, the teacher tells students:

1. “At the drumbeat, move together silently and slowly through space at a low level/ high level/mid-level (demonstrate the different levels). When the drum stops, create a shape with your partner.”
2. “Create shapes with your bodies that show the meaning of the different prepositions. I’ll call out how I want you to shape yourselves. When you hear the drumbeat, move into that shape: #1 *over* #2; #2 *under* #1; #1 *beside* #2; #2 *in front of* #1; #1 *around* #2.”
3. “What shape could we create where each one of you is *in front of* someone and *behind* someone else?” (A circle.) “In five slow drumbeats we’re going to create a circle with everyone in the room. Be sure you are *in front of* someone and *behind* someone.”
4. “In your circle, sit *on* the floor.”

Literacy Through Drama (Grades 3–6)

Christine Caton

Christine Caton is director of education for Young Audiences of Oregon & SW Washington.

Activity Title: Showing with words

Content Area: English/language arts

Common Curriculum Goals:

- Writing: Pre-write, draft, revise, edit and publish across the subject areas
- Speaking and listening: Communicate supported ideas across the subject areas using oral, visual, and multimedia forms in ways appropriate to topic, context, audience and purpose

3rd–6th Standard: Planning, evaluation, and revision; listening

Activity Learning Process

The teacher

1. discusses the importance of showing, as opposed to telling, in students' writing. For example, "I took off my shoes and socks and walked through the grass," can become a sentence that shows through words by describing what one sees, hears, tastes, smells and feels. It might be revised to read, "I tugged off my hot, sweaty shoes and socks, set my feet down into the velvety cool grass, and slowly walked through it."
2. defines *pantomime* (action—expression, gesture, movement—with no sound);
3. divides class into groups of three and gives each a sentence written on a piece of paper. As a strategy for revising, each group is to plan and rehearse an interpretation of the sentence through pantomime. Sentence ideas: "The party was fun." "My parents seemed angry." "They ate like pigs." "The pizza tasted good." "The witch and her assistants made a brew."
4. invites one group at a time to write its original sentence on the board and present its pantomime;
5. asks the student audience what they saw, tasted, smelled, felt or heard in their imagination as they watched the pantomime, recording their responses in words or short phrases on another section of the board;
6. has the students regroup and use the recorded responses to revise their original sentences, using showing instead of telling words; and
7. invites each group to write its revised sentence on the board under the original and read it aloud.

LISTENING

WR**I**TING

THINKING

SP**E**AKING

READING

LE**A**RNING

CREATING

APPL**Y**ING

Literacy Through Music (Grades 3–5)

Rick Meyers

Rick Meyers is a Young Audiences music teaching artist.

Through its musical notation and lyrics, a song is a way to express ideas, events or personal stories. We usually use language for reading, writing and speaking. What distinguishes song from other literary forms is that the final product is sung rather than spoken. When children write new lyrics to familiar melodies, they use a variety of literacy skills.

Activity Title: Literacy through songwriting

Content Area: English/language arts

Common Curriculum Goals:

- Develop an interpretation of grade-level literary text
- Write a narrative, expository and persuasive text, using a variety of written forms
- Listen critically and respond

3rd–5th Standard:

- Literary text: Demonstrate an interpretation
- Writing applications
- Listening

Activity Learning Process

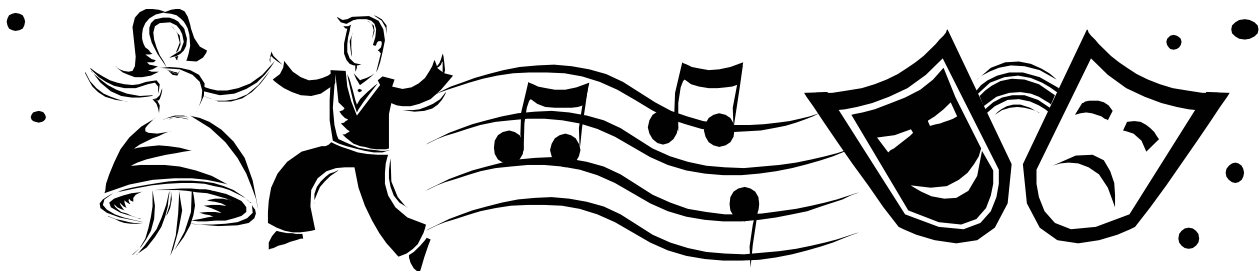
The teacher

1. makes a list with the students of familiar songs that most of them know the words to (for example, “Yankee Doodle,” “I’ve Been Workin’ on the Railroad,” “This Old Man”);
2. has the students sing the songs several times;

3. asks the group to choose one song to focus on, then writes the lyrics on the board. Asks: “What is the song about? Does it tell a story or describe an event? If so, what? Who are the characters? Is there a theme or message? Do you recognize any literary elements, such as rhyme, repetition, a narrator, in the song?”
4. has the group make a list of everyday experiences that could be described and expressed in song. These can be about common happenings at home or school, current events, curriculum concepts, or an area they’re working on or researching in class;
5. divides class into small groups of three to five students. Each group chooses an experience from the list in #4 and, keeping the melody the same, rewrites the words to describe/express the idea;
6. has the students refer to the questions in step #3 to incorporate the literary elements that make a song memorable—story, character, problem, theme, message, etc. Students preserve as close as possible the original rhyming pattern and verbal meter;
7. has students practise in groups to learn the new song, which they then perform for their peers; and
8. leads a discussion about what students learned from the process, the challenges they faced and what they liked most.

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Teachers Teaching Teachers: Designs for Arts Professional Development

Christine Caton and Jane Reid

Christine Caton is director of education for Young Audiences of Oregon & SW Washington. Jane Reid is education associate with Young Audiences of Oregon & SW Washington. This article is reprinted from Artworks! Newsletter with permission from the publisher, Young Audiences of Oregon & SW Washington, and is available online at www.ya-or.org and www.arts4learning.org. Minor changes have been made to spelling and punctuation to conform to ATA style.

In this time of cuts to budgets and instructional days, schools are forced to be more practical and creative in stretching their resources. And that includes innovative strategies for providing professional development in the arts for teachers. More and more schools are realizing the added value in finding ways for teachers to teach teachers.

A school begins to develop a long-lasting, sustainable resource in its own building by assisting its staff in growing more comfortable, confident and competent in teaching and integrating the arts. A school that allows its teachers to coach their colleagues becomes a nurturing, professional environment in which best practices can be tried, shared, assessed and fine-tuned. To do this effectively, a school must first assess the needs of its staff

and students, determine what arts gaps there are in the curricula and explore the expertise of its own faculty as potential teachers of the arts. A side benefit: the arts are fun and bring out staff creativity!

Teaching Teachers to Teach Teachers

Portland's Laurelhurst Elementary School matched a Regional Arts and Culture Council ArtsPlan Schools Incentive Grant with Run for the Arts funds to work at different times throughout the year with visual artist and arts educator Annie Painter. Their year-long experience in colour theory and colour mixing was a combination of whole-staff development in teaching the art form and assessing student learning, and focused training of four teachers who would take what they learned to every classroom in the school.

After a day of planning with Ms Painter for the year's work, the four trainees spent another day shadowing her workshops in selected classrooms. Then they were on their own, each leading four more colleagues and their students through a colourful paper-painting experience. This shadowing/teaching/peer-observation process continued into the project phase, when the four again shadowed the artist, learning how to transform the painted paper into works of art. They then went throughout the school teaching their colleagues and

their students how to create a variety of colourful masks, butterflies, insects or fish. Ms Painter provided assessment and evaluation ideas for each teacher.

Through this combination of professional expertise, shadowing, peer teaching and judicious use of teacher release time, the entire school came away enriched and steeped in colour theory!

Peer Teaching

At John Ball Elementary, in Portland, two teachers represented their staff at the weeklong Oregon Teacher Arts Institute last July at Western Oregon University. One of the visual art workshops in which they participated was so practical and relevant to their teaching that they returned to school and collaborated on making the lesson their own. They then taught their peers what they learned at a staff workshop just before the school year began. On the first day of classes, Ball Elementary students walked into a school filled with *teacher art*! The colourful hallways proved to be a great motivator once the staff taught their own students the same lesson.



Shadowing

The folks at Echo Shaw Elementary, in rural Forest Grove, stretched their dollars by maximizing the classroom teaching that took place during a series of visual arts workshops with Salem artist and former art teacher Annie Stecker. The school had chosen to spend a year exploring the basics of visual arts before working with Ms Stecker on a mosaic installation next year. Some of the key elements of this professional development were:

- Ms Stecker visited each classroom twice, teaching lessons determined at planning meetings with grade-level teachers.
- Through the use of roving substitutes, each teacher accompanied the artist to another classroom for observation and shadowing, then returned and taught that lesson to his or her students.
- Time was scheduled for teachers to meet with Ms Stecker with questions or concerns.
- The artist wrote lesson plans for each workshop; the lesson plans were laminated and made accessible to every teacher.
- The process culminated with an evaluation survey and written self-reflection of what each teacher learned from the experience.

And the projects were wonderful! From kindergarten's clay knee bowls to Grade 1's crayon resist interpretation of van Gogh's *A Starry Night*, from Grade 2's clay animals to Grade 3's lessons on tints through the works of Georgia O'Keefe and Grade 4's Native American pinch pots, the halls were filled with amazing student art. Teachers came away with non-intimidating technical knowledge, lessons they can replicate, and experience as both artist and teacher.

More Tips for Bringing the Arts into Your Classroom

Corinna Bisgaier

Corinna Bisgaier is education director for Young Audiences of New Jersey. This article is reprinted from Artworks! Newsletter with permission from the publisher, Young Audiences of Oregon & SW Washington. It is available online at www.ya-or.org and www.arts4learning.org. Minor changes have been made to spelling and punctuation to conform to ATA style.

For Elementary School Students

Help students with reading comprehension by creating a “tellback hotseat” in the front of the room. After reading a story aloud (or having older children silently read), have a student volunteer sit in the hotseat to tell the class everything that he remembers from the story in his own words. Avoid coaching or asking questions while the child is talking. Encourage him to include as many details as he can remember and let him know that it’s okay if the details are out of order. If a child gives a confusing tellback or misses some important parts, try to prompt him by asking a clarifying question or call on another student to add to the tellback.

This exercise will help students in reading comprehension by letting them know that they are responsible for what they read and need to remember it. It is

especially good for beginning readers who are so focused on decoding the text that they may lose track of the overall story.

As an extension to this exercise, have students practise telling the story to each other. They can take the basic ideas from the story and elaborate on them, making the story their own. This ensures that they will remember the story and helps them to visualize the action and develop the nuances of the characters for themselves.

Another possible extension: after discussing how the characters feel at different points in the story, have students draw a picture of themselves reacting to the same situation.

For Secondary School Students (English, history, science, foreign language)

Consider reading aloud to your class. Even older students enjoy occasionally being read to. By reading aloud to your class, you model the skills that a good reader employs (changes in tone of voice and emphasis, paying attention to punctuation clues, and using a character’s emotion to inform your reading). After reading a section aloud, consider the following exercises:

1. Ask students about what they visualized as you read. What clues did they hear from the reading that helped them to formulate this image?

Teacher to Teacher

2. If they were to draw a character based on the reading, what would he or she look like? Ask them why, or have them draw the character.
3. Ask about how the punctuation, content, and/or character's emotion informed your reading.

Consider reading a passage twice, first with poor expression and no punctuation. Then ask students what was wrong and how you could make it better. Follow up with a reading based on their suggestions and then discuss what made it better.

This exercise is a great way to build student comprehension and involvement in their reading. It is especially helpful for them to hear what a good reader sounds like and does (by talking about visualization and what the character is like based on textual clues).

This is an especially good exercise to model your own thinking when you read. Teachers of subject areas which do not normally focus specifically on reading (science, history, foreign language) will find that this is a great way to show students how reading in your subject area is different from reading literature. This can be a great opportunity to teach students the questions they should ask themselves when they read in your subject.

This is an especially effective way to teach comprehension in a foreign language. Choose an especially dynamic passage and discuss how the nonverbal clues you gave in your reading (tone, facial expression, gestures, etc) helped students to understand the unfamiliar vocabulary.



Selfish Educators— How Can That Be?

Jody Swift

Jody Swift holds a BEd and a BFA from the University of Lethbridge. She is the drama representative on the Fine Arts Council executive.

I find it shocking when I am told of a student teacher or “newbie” teacher who has sought the advice or resources of a colleague, only to be redirected or rejected. Maybe I respond this way because as a drama

teacher I am an accepting, giving person by nature. I would feel honoured to have someone use materials that I have created, honed and implemented; to have other teachers implement my materials in their classrooms means that they felt them worthy.

As teachers, we are in the business of taking a concept and breaking it down so that the layperson can understand it and internalize it. We all have different approaches, and as lifelong learners we are encouraged to seek greater, better, applicable ways to connect our students to the curriculum. Whether the material that inspires us comes from a professional development session, a conference or a colleague shouldn't make a difference.

So, what is with all the secrecy? Why are teachers so afraid to share their successes (materials, resources, knowledge) with their colleagues? Jobs aren't at stake; students can't line up at a teacher's door vying to get into the “best” teacher's class. So what's the threat?

I have worked with student teachers for the past five years. At first, I wanted to repay the university for setting me up in practicums that allowed me to grow and learn. However, now I invite student teachers into my class so that I can offer what I know (as I already do with my students), and learn myself from



the latest in what the university feels worthy of paying forward to these creative, enthusiastic, fresh educators. When they work with me I offer them the opportunity to photocopy, borrow and use any of the resources I have. If requested, I will provide an electronic copy of whatever the student may be interested in. Even if a young educator's task were to reinvent the wheel (which it isn't), the wheel would still be there to use as inspiration, a jumping-off point. That is what these resources are. They are meant to be manipulated, reinvented, tinkered with. As George Bernard Shaw said, "You see things; and you say 'Why?' But I dream things that never were; and I say 'Why not?'"

Mentorship programs exist in several fields, and their purpose is to draw people to a given profession and help them get oriented so that they can succeed. We also want to help our students succeed, so is it not contradictory to be a selfish educator? Isn't there enough stress in our jobs with large classes, classroom dynamics and the social/financial issues that our students have, all of which teachers deal with on a daily basis? Sharing resources, supporting one another, learning together should be a given.

I am proud to say that my school has worked really hard over the past year to implement a true learning community. We have learning coaches who have time built into their schedules to seek out resources for teachers, to cover for teachers who want to observe teachers, to be an extra mind in a classroom of 34 students; furthermore, they offer miniworkshops in specific areas. Free professional development—right on! These coaches are not experts in any given field; they

are colleagues who are willing to find answers and devote time to our community. Peter Block (2003, 21) states it well when he says, "If we want to create a workplace that values idealism, human connection, and real, in depth learning, we will have to create it ourselves." No one is made to feel inferior at my school; these positions can rotate, and anyone can go to our principal and request to be a learning coach. It does not matter if we are specialists or generalists in our given assignments; everyone can benefit from learning new sets, rubrics, brain and behaviour activities, all of which are basic tools that can be used in any classroom.

"It is what teachers think, what teachers believe, and what teachers do at the level of the classroom that ultimately shapes the kind of learning that young people get" (Hargreaves and Fullan 1992, ix). So think about how important it is to share your brilliance, your lessons and your resources. Be a mentor, open your classroom to a student teacher or invite a newbie to observe you, or step out of your classroom and observe someone else. Give, share and educate everyone who is willing and eager to learn.

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A Professional Payoff: The Rewards of Arts Education

Christine Caton

Christine Caton is director of education for Young Audiences of Oregon & SW Washington. This article is reprinted from Artworks! Newsletter with permission from the publisher, Young Audiences of Oregon & SW Washington. It is available online at www.ya-or.org and www.arts4learning.org. Minor changes have been made to spelling and punctuation to conform to ATA style.

Educators learn early on that the rewards of this career choice are not going to be in fame or fortune. I've now spent over 30 years in the field of arts education and can tell you about the big payoff. For me it has been the many students, teachers, principals and artists who have influenced me with their approaches to teaching and learning, impressed me with their creativity and encouraged me to stay in the field. It has been celebrating the people I've met, the art they've created and the lives they've changed.

Last spring I received one of those big payoffs. Between January and May, I had the good fortune to work with four extraordinary elementary classroom teachers on a field study that used the arts, technology and peer support. It examined the national Arts for Learning (A4L) website, www.arts4learning.org, developed by Young

Audiences to animate teaching and learning in and through the arts. Content on the website was generated by teams of teachers and teaching artists from across the [US]. The four-component Oregon field study was about the efficacy and practicality of the site. The teachers (1) learned about art and researched online resources, (2) brainstormed ideas for integrating the arts into their own classroom curricula, (3) designed and tested a total of seven arts-integrated lessons that are now published online and (4) shared and reflected on the successes and challenges of the work they accomplished.

Art and Technology

The project began with a full-day workshop at Pacific Northwest College of Art. In the morning, twelve Young Audiences artists whose programs are currently posted on the A4L website joined the four teachers and, working in pairs, they all toured an award-winning, student-created exhibition of photographs, paintings and three-dimensional art. They responded to key questions, used their findings as a springboard for discussion about art and arts integration, and independently explored resources on the site. In the afternoon, each teacher led a small group of artists in a session that looked at ways to strengthen the artists' programs and lessons currently on the website. The artists were sparked to look at their content in ways that would better support different kinds of learners.

Collaborative Brainstorming

Stimulated by the January workshop, the teachers and I met two weeks later in the computer lab at Portland's Lewis Elementary School. Using the website and discussion, we came up with ideas for original, grade-appropriate lessons in math, science, language arts or social sciences through the arts. We also established an online "my a4L" group work space that the teachers would use to report their progress, ask each other for advice, download resources that might be helpful to their peers and share shortcuts on how to design original curriculum while teaching full-time. Says second-grade teacher Deborah Swan, "Had I done this on my own, I would have frozen for the first month. But it helped that we bounced ideas off one another. It made us better teachers."

Curriculum Development

Between mid-February and May, the teachers designed, implemented and revised their lesson plans. To determine what they wanted to teach through the arts, they asked themselves questions such as: What kind of learners are my students? What subjects taught through the arts will give them extra support or assistance? What art discipline will I be comfortable teaching, yet will stretch me to grow professionally? They began their inquiry through Internet research and online peer support. They phoned and e-mailed each other. They met in person after school and on weekends. Then they took the answers to their questions and designed lessons that motivated, stimulated and challenged their students in new ways. "At one point in the beginning of my Neighborhood Quilt project," says primary teacher Donna Weber, "I thought 'what was I thinking? I don't know anything about acrylic paints. Why am I teaching this?' But once we got into it and actually started painting, it was awesome. The students and I felt that we accomplished something very special." The teachers tested the lessons in their own classrooms, and over 120 students produced original art: some they took home and shared with their families; some became permanent fixtures in the school environment.

Reflection

The fourth component of the project was an evening of cuisine, culmination and celebration. Over dinner at my house, the teachers shared their well-documented lessons and their students' work. They also reflected on the process—what new things were revealed about their students and what they learned about themselves as educators, artists and peers.

The project elicited many changes. Students became deeper thinkers in science, math, social studies and language arts through their research, planning and creation of original pieces of art. According to fifth-grade teacher Renee Fern, "It wasn't the gathering and creating of the memorabilia that was the focus for the kids, but the process of putting the collage together that took on a life of its own. They worked layer by layer, from the bottom up and the top down—and I marvelled, sat back and smiled."

School classrooms, hallways and gardens brimmed with colourful and interesting things to see and touch. After Jessica Petkun's second/third-grade class at Echo Shaw Elementary placed the stepping stones they had created into the school landscape, one student remarked, "Ms Petkun, there's bark dust on some of our stones!" Ownership and commitment to caring for public art had been added to the creative process.

And the four teachers changed. They see themselves differently now, as artists as well as educators. They know more about visual arts and working in specific media. They are more comfortable making and assessing art. They discovered new sides to their students by providing them with different ways of expressing what they know. "Art is a personal expression and I learned to appreciate that in my students as well as in myself," says Renee Fern. "It's art that makes us interesting people."

For me, the payoffs from this project were huge, and what I gained from working with and learning from these teachers will last me a lifetime. I had a close-up look at four intelligent, interesting, giving women who moved me with their creative approaches to pedagogy that honoured each student as a unique learner and artist. The student art they shared was beautiful and was created in careful, well-thought-out steps reflecting deep learning in multiple subjects. For an arts educator, it doesn't get much better than this!

Teaching Basics Through the Arts

Mona Brookes

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There was a moment when I thought I would see the extinction of the arts in our education system. I heard the cry for huge budget cuts that resulted in cancelled art classes. I was surprised to learn how much parents cared about those cuts as they flocked to private art programs and developed after-school enrichment programs. School districts that wanted their teachers trained in how to integrate the arts into their teaching methods began to have trouble finding the funding.

Then a wondrous thing happened. Elementary teachers began to sign up for supplemental training on



Arts-ful Features

their own. I saw them purchasing resource materials and educating themselves on how to understand multiple intelligence theory and integrated curriculum concepts. Their dedication astounded me. They said they felt that eliminating the arts was a mistake. They talked about how children learn in various ways and how academics were suffering from the loss of the arts. They made me understand the role of the arts in basic education. They expanded my focus from realistic drawing instruction to an entire curriculum that uses drawing to teach academic subject matter.

As an artist and the founder of the Monart drawing schools, I simply wanted to help children draw for enjoyment. Symbolic stick figure drawing came naturally to all my students, but realistic drawing did not. It seemed apparent that they needed instruction to achieve realism, just as they did to learn music, dance, creative writing and endless other artistic endeavours. As a result, I had to develop a structured curriculum that taught enough basics for success and enough freedom for creative expression. It was a delight to find that the structured lessons did not interfere with the symbolic drawings they did on their own. I would never have guessed that the structured method would also lead to helping students in their other subjects. Hundreds of teachers, from all over the country, taught me the connection. Their stories were too consistent to ignore.

Teachers who taught reading reported that children who learned to draw and see through my visual alphabet had dramatic increases in letter recognition and reading readiness. These teachers noticed that the motivation to read expanded when the children drew the characters and subjects from their books. Drawing

the content of science, geography and social studies lessons resulted in noticeable differences in speed of learning and retention. When teachers used the abstract design lessons to teach math concepts, they witnessed children break through conceptual blocks with ease while having fun.

Teachers observed that students who had attention problems could learn through drawing to stay on track for unbelievable lengths of time. In order to achieve realistic drawings the students automatically learned to focus, concentrate and problem solve. With motivation at its peak, teachers witnessed peak learning of course content. After a year of using the program, school districts began reporting as much as 20 per cent increases in reading, writing and math scores. I watched the same phenomena occur when teachers integrated music, movement, visual games, journal writing and other artistic fields of study into their lessons.

The arts are coming back, stronger than ever, whether they get funded or not. In the last ten years I have watched the awareness and implementation of the arts increase dramatically. At a time when art budgets are still threadbare, teachers have educated themselves in how to use the arts as one of the most powerful teaching tools they have. The reason the shift is taking place is because it works.

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Getting to the Top: Arts Essential Academic Learning Requirements

Doug Herbert

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A year ago, I traced the developments in making the arts a core subject over the past 25 years for an article in the journal of the National Association of State Boards of Education (NASBE). I likened that effort to the plight of Sisyphus, who toiled unceasingly to push a boulder up a steep hill. But I concluded that recent developments in curriculum, assessment, research and policy, most notably inclusion of the arts as a core academic subject in the *No Child Left Behind Act* (NCLB), could be effectively harnessed to move the boulder to the top of the hill. (For those interested in that recounting and analysis of arts education developments, the article “Finding the Will and the Way to

Make the Arts a Core Subject” can be found at www.nasbe.org/Standard/Past.html).

I contended then and now that in order to truly make the arts a core subject, meaning that they would be sequentially taught and rigorously learned by all students, actions must be taken on three levels simultaneously.

First, there must be commitment from citizens and taxpayers, and that most importantly includes parents. Recent national polls of public attitudes about the arts indicate that a majority of Americans consider the arts to be vital to a well-rounded education for all students. But they may not be aware of two important, contemporary aspects of that belief: what it means to have a comprehensive, sequential program in the arts, especially in terms of the standards-based nature of the curriculum. For instance, parents in Washington State may not be aware of, or familiar with, the Arts Essential Academic Learning Requirements (EALRs). Additionally, parents and the business community should understand how preparation in the arts is also an excellent foundation for careers in this new century. Let’s not only tell them about it, via brochures and PSAs. Better still, let’s get them into the schools to see the unique ways in which creativity, problem-solving, teamwork and higher-order thinking skills are developed through the arts. Parents and businesspeople will see these skills in action, which is important because each skill is necessary for success in today’s marketplace of ideas.

Arts-ful Features



Second, we must establish the arts as central within the local schools. While *No Child Left Behind* declares the arts to be a core academic subject, each local school district must make that a reality based on its state standards and local curriculum. Unfortunately, some districts are not including the arts as a core subject, and, in some instances, blaming NCLB for cutbacks or even eliminations of arts programs.

Then Secretary of Education Rod Paige set the record straight about NCLB and the arts in a July 2004 letter to state and local superintendents. "I believe the arts have a significant role in education both for their intrinsic value and for the ways in which they can enhance general academic achievement and improve students' social and emotional development," he wrote. Then the Secretary explained the flexibility of funding under NCLB, citing programs that have used federal education support to make the arts a part of their education improvement efforts. The Secretary's letter, which is accompanied by an enclosure describing research reports and other resources helpful to principals and teachers, can be found at www.k12.wa.us/curriculumInstruct/arts/.

In Washington State, the EALRs are helping to establish the arts as central in local districts by setting clear benchmarks for achievement in arts content knowledge and skills. Washington also is among a handful of states committed to making assessment a companion to the arts standards. With the support of the legislature and leadership from the Office of Superintendent of Public Instruction, the Washington Classroom-Based Assessment, which begins next school year with voluntary assessments in local districts, is off to a very promising start. In addition, starting with this year's ninth graders, Washington State students will graduate from high school with at least one full year of study in the visual or performing arts.

Third, there must be acceptance of the arts by teachers and administrators, combined with efforts to ensure that they have the knowledge and skills to plan and carry out a comprehensive, quality arts education program. And to do so, it will take the continued commitment of higher education, the state's associations of school policymakers and administrators, business and corporate interests, the philanthropic community, and other stakeholders in public education.

All About Accountability: Swords with Blunt Edges

W James Popham

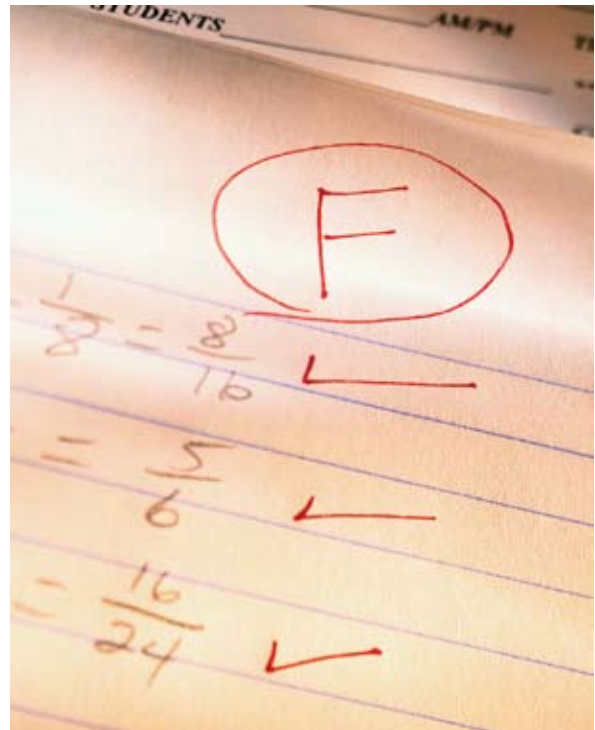
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Many US educators now wonder whether they're teachers or targets. This mentality stems from the spectre of their school being sanctioned for failing the state accountability tests mandated under No Child Left Behind (NCLB). Unfortunately, most of those tests are like blunt-edged swords: they function badly in two directions.

We often hear teachers complain that their schools are actually better than their students' low test scores indicate. On the other hand, we rarely hear any teachers argue that their students' high test scores may actually be masking wretched instruction. Yet inaccurate judgments about school quality can harm students, whether those evaluations are negative or positive. We must pay attention to both kinds of evaluative mistakes.

Just for a moment, I want you to make a counter-intuitive assumption. Please assume that many schools labelled as “low-performing” by the NCLB tests are actually doing a *good* instructional job, and that many schools identified as “high-performing” are actually doing a *bad* instructional job. If that seemingly perverse assumption happened to be true, you can readily see how high-stakes accountability practices could harm students in falsely labelled “ineffective” schools: this label is likely to cause their teachers to abandon their excellent instructional strategies and, in desperation,



turn to such unsound classroom conduct as drilling students relentlessly or dumping key content that isn't covered on the state's accountability tests. Students in the falsely labelled "effective" schools are also harmed, though. Here, accountability is apt to increase the complacency of some self-satisfied teachers who will do little to improve a weak instructional program that appears to be wonderful according to test results.

Tragically, the counterintuitive assumption coincides almost completely with what is currently going on in US public schools. More often than not, schools falsely labelled as low-performing serve lower socioeconomic-status students, and those falsely labelled as high-performing serve higher socioeconomic-status students.

I've personally spent time in many of these inaccurately labelled schools, and I assure you they exist in large numbers. Consider a school serving many students from low-income, single-parent families that children attend accompanied by little, if any, education assistance from home. These youngsters, frequently minority students, don't have access to the enrichment experiences that test makers often assume all students have. Although the teachers in this school do a bang-up instructional job, students' scores on the state's accountability test don't improve significantly. Students' backgrounds function as a barrier to this school's test-determined success.

At the other extreme, you can find a suburban school serving mostly upper-class white students who arrive at school with loads of test-relevant knowledge that they have acquired from home through dinner table discussions, educationally germane TV, and annual family vacations to intellectually stimulating locations. The parents of this school's students provide all sorts of support at home for what goes on in school. Even if the teachers in this suburban school do a

slipshod job of instruction, their students will invariably score high on the state accountability tests. These students come into the education game, and the testing game, truly advantaged—and so does their school.

In previous columns, I have tried to explain why almost all of the NCLB tests now being used to evaluate US schools are instructionally insensitive—unable to detect improved instruction in a school even when it takes place. Current NCLB tests are much too closely correlated with students' socioeconomic status (SES). As a result, a school's NCLB-based evaluation depends less on the quality of instruction that the school provides than it does on the demographic makeup of the school's student body.

In the last year or two, the clamour from US educators has focused on the harmful consequences of NCLB tests inaccurately labelling schools as failing. Amid a cacophony of complaints about falsely labelled low-performing schools, few educators express concern about falsely labelled high-performing schools. Yet the label that NCLB tests put on such schools does an enormous disservice to students by making it unlikely that flawed instruction will be ferreted out and replaced. If the parents of children who attend such high-SES suburban schools ever discover that the instructional calibre of their school, when accurately evaluated, is far less fabulous than has been touted, look out for a well-warranted parental backlash.

I am not contending that all high-SES schools are serving up shabby instruction. That's obviously not so. Many teachers in these schools do a dazzling job of teaching their students. I am suggesting, however, that inappropriately chosen NCLB accountability tests—like blunt swords that don't slice well in either direction—lead to two types of school-evaluation mistakes that harm students. We must be on guard against both of these evaluative errors.

Every Child Needs the Arts

Charles Fowler

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Charles Fowler (1931–1995) received a master of music degree from Northwestern University and a doctor of musical arts degree from Boston University. As a practitioner of several arts with a background of teaching on every level, Dr Fowler was an eloquent spokesman on behalf of the arts in education. He lectured and consulted extensively on this topic throughout the United States and abroad, and wrote more than 200 articles, numerous books and reports, and scripts for music programs on National Public Radio and for many notable personalities. For 15 years he served as the education editor of Musical America magazine and was also editor of Music Educators' Journal. Among his publications is Sing!, a textbook for secondary school choral classes.

The arts are windows on the world in the same way that science helps us see the world around us. Literature, music, theatre, the visual arts, the media (film, photography and television), architecture and dance reveal aspects about ourselves, the world around us and the relationship between the two. In 1937, German planes flying for Franco in the Spanish civil war bombed a defenceless village as a laboratory experiment, killing many of the inhabitants. In *Guernica*, Pablo Picasso painted his outrage in the form of a vicious bull smugly surveying a scene of human beings screaming, suffering and dying. These powerful images etch in our minds the horror of a senseless act of war.

Similar themes have been represented in other art forms. Benjamin Britten's *War Requiem* gives poignant musical and poetic expression to the unpredictable misfortunes of war's carnage. Britten juxtaposes the verses of Wilfred Owen, a poet killed during World War I, with the ancient scriptures of the Mass for the Dead. In Euripides' play *The Trojan Women*, the ancient art of theatre expresses the grievous sacrifices that war forces human beings to endure. The film *Platoon*, written and directed by Oliver Stone, is a more recent exposition of the meaning of war, a theme that has been treated again and again with telling effect in literature throughout the ages. The theme of human beings inflicting suffering upon other human beings has also been expressed through dance. One example is *Dreams*, a modern dance choreographed by Anna Sokolow, in which the dreams become nightmares of Nazi concentration camps.

This theme and many others are investigated, expressed and communicated through the arts. Through such artistic representations, we share a common humanity. What would life be without such shared expressions? How would such understandings be conveyed? Science is not the sole conveyor of truth. While science can explain a sunrise, the arts convey its emotive impact and meaning. Both are important. If human beings are to survive, we need all the symbolic forms at our command because they permit us not only to preserve and pass along our accumulated wisdom but also to give voice to the invention of new visions. We need all these ways of viewing the world because no one way can say it all.

The arts are *acts of intelligence* no less than other subjects. They are forms of thought every bit as potent as mathematical and scientific symbols in what they convey. The Egyptian pyramids can be described in mathematical measurements, and science and history

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can hypothesize about how, why and when they were built, but a photograph or painting of them can show us other equally important aspects of their reality. The arts are symbol systems that permit us to give representation to our ideas, concepts and feelings in a variety of forms that can be read by other people. The arts were invented to enable us to react to the world, to analyze it and to record our impressions so that they can be shared. Like other symbol systems, the arts require study before they can be fully understood.

Is there a better way to gain an understanding of ancient Greek civilization than through their magnificent temples, statues, pottery and poetry? The Gothic cathedrals inform us about the Middle Ages just as surely as the skyscraper reveals the Modern Age. The arts may well be the most telling imprints of any civilization. In this sense they are living histories of eras and peoples, and records and revelations of the human spirit. One might well ask how history could possibly be taught without their inclusion.

Today's schools are concerned, as they rightly should be, with teaching literacy. But literacy should not—must not—be limited to the written word. It should also encompass the symbol systems of the arts. If our concept of literacy is defined too narrowly as referring to just the symbol systems of language, mathematics and science, children will not be equipped with the breadth of symbolic tools they need to fully represent, express and communicate the full spectrum of human life.

What constitutes a good education anyway? Today, one major goal has become very practical: employability. Children should know how to read, write and compute so that they can assume a place in the work force. Few would argue with that. Considering the demands that young people will face tomorrow in this technological society, the need for literacy in English language, mathematics, science and history is critical. But this objective should not allow us to overlook the importance of the arts and what they can do for the mind and spirit of every child and the vitality of American schooling.

Educational administrators and school boards need to be reminded that schools have a fundamental obligation to provide the fuel that will ignite the mind,

spark the aspirations and illuminate the total being. The arts can often serve as that fuel. They are the ways we apply our imagination, thought and feeling through a range of “languages” to illuminate life in all its mystery, misery, delight, pity and wonder. They are fundamental enablers that can help us engage more significantly with our inner selves and the world around us. As we first engage one capacity, we enable others, too, to emerge. Given the current dropout rate, whether the entry vehicle to learning for a particular human being happens to be the arts, the sciences or the humanities is less important than the assured existence of a variety of such vehicles.

The first wave of the education reform movement in America focused on improving the quality of public education simply by raising standards and introducing more challenging course requirements at the high school level. The second wave has focused on improving the quality of the nation's teachers. The third wave should concentrate on the students—how to activate and inspire them, how to induce self-discipline, and how to help them to discover the joys of learning, the uniqueness of their beings, the wonders and possibilities of life, the satisfaction of achievement, and the revelations that literacy, broadly defined, provides. The arts are a central and fundamental means to attain these objectives.

We do not need more and better arts education simply to develop more and better artists. There are far more important reasons for schools to provide children with an education in the arts. Quite simply, the arts are the ways we human beings talk to ourselves and to each other. They are the language of civilization through which we express our fears, our anxieties, our curiosities, our hungers, our discoveries and our hopes. They are the universal ways by which we humans still play make-believe, conjuring up worlds that explain the ceremonies of our lives. The arts are not just important; they are a central force in human existence. Every child should have sufficient opportunity to acquire familiarity with these languages that so assist us in our fumbling, stumbling and all-too-rarely brilliant navigation through this world. Because of this, the arts should be granted major status in every child's schooling.

Award Address: Using the Arts to Make Chemistry Accessible to Everybody

Zafra M Lerman

Zafra M. Lerman is head of the Institute for Science Education and Science Communication at Columbia College Chicago.

This paper is derived from a talk given at the presentation of the James Flack Norris Award for Outstanding Achievement in the Teaching of Chemistry of the Northeastern Section of the American Chemical Society, held November 7, 2002.

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Although all chemists know the importance of chemistry in daily life, the rest of the population somehow does not seem to share our view. Each of us believes that we must teach chemistry to everyone, yet we have not succeeded in persuading everyone that they

must study chemistry. I believe the reason is often the methods used to communicate chemistry to the public. The arts (music, dance, drama, fine arts) are excellent vehicles to enhance understanding. For example, most people are not interested in the concept of the ionic bond, but when presented as a love story between Sodium and Chlorine like Shakespeare's Romeo and Juliet, people enjoy learning about the bonding relationship. In addition, the drama students who write and act out the script remember the concept far longer than would be expected through more conventional teaching methods. The same is true for students who wrote and acted in *The Bondfather*, and for the students who danced *The Three States of Matter*. (Our hero falls in love with Solid, but "When she warms to him, through his fingers she runs," and when his love heats up with Liquid, "Her love escaped from him, just like a vapour.")

The Beginning

My story of using the arts to make chemistry accessible to everybody must begin with how I came to Columbia College Chicago. My research career in secondary isotope effects included time spent at the

Weizmann Institute of Science, the Technion–Israel Institute of Technology, Cornell University, Northwestern University, and ETH–Swiss Polytechnicum. The modern Columbia College was started in the 1960s by then-president Mirron (Mike) Alexandroff with 200 students. Mike used to say it was “a school that no parent heard about, but every child on the street knew about.” He was very liberal, and attracted former members of the Progressive Party of the 1940s as instructors to the school. His vision was to start a school that would be a model for the future, with an open admission policy to allow everyone to have a chance in life. Columbia is not an open graduation school, but with its open admission policy, any student with a high school diploma can attend. Mike wanted to make Columbia College a place that would attract students from the inner city, students who would otherwise never have been able to go to any other art school simply because they would not have the established portfolio required for admission. Mike surrounded himself with the best and the brightest of the city of Chicago to teach. They did not always receive a salary, and sometimes they even had to contribute their own money to help the school survive. Today the school has more than ten thousand students—it is the largest art school in the country and the largest independent college in the state of Illinois outside of the comprehensive universities. When Mike started Columbia College, it consisted of one floor in a rented building; today we own fourteen buildings, and Columbia is the largest landlord in the South Loop area. Chicago is our campus—and it is a big one! We have students from all over the world, but the original philosophy and vision remain intact.

Columbia College was accredited as a liberal arts college in 1974. After a few years, Mike decided that, as a liberal arts school, science had to be added as a component of the curriculum. But how to do it was a big concern, because it meant suddenly bringing science into a place packed with so many creative artists, writers, dancers, actors, musicians and poets. He sent a letter around the country searching for a scientist involved in arms control and disarmament, in human rights, in helping minorities and in caring for the poor. A good friend of Mike’s was the editor of the *Bulletin of Atomic Scientists*, and distributed his letter among scientists who were active in the Pugwash Conferences and who regularly read the *Bulletin of Atomic Scientists*. My name came up, and Mike invited me to the college.

The year was 1977 when I arrived at Columbia College; I was dressed for an interview. I had an appointment with the dean, so I waited, and waited, and waited. In the meantime, a very thin and gaunt man, who had long hair down to his waist and a goatee, walked by—I was sure that it was Jesus, who had stepped directly out of Da Vinci’s *The Last Supper* (he turned out to be the executive vice-president). Following him was a beautiful large man, with long flowing white hair, a long white beard and bushy white eyebrows. He was so impressive that if I had to draw Moses, this is the only image I would have chosen (this man was the college’s president). I said to myself: “This must be quite an interesting place, where Moses and Jesus walk together.” While I continued to wait for the dean, the secretary kept assuring me that he would be there soon. Suddenly, the door opened, revealing a person with long brown hair, wearing glasses with pink lenses, an embroidered purple shirt and a ring on every finger. This image asked, “Can I help you?” and I responded, “I am waiting for the dean.” He answered, “I am the dean,” and the only reply I could think of was, “Oh.” He invited me to his office and reminded me that I had never sent him my resumé. I told him that I brought it with me, and put it on his desk. He then proceeded to apologize for his tardiness, explaining, “I am late because the faculty and administration went for a retreat this weekend.” I was in a state of shock because, until that time, I knew only about Baptists and Hare Krishna going for retreats, but I had never heard about university faculty and administration going on retreats—I was sure I was in a cult and this place had nothing to do with an academic institution. But this was the 1970s, and I listened carefully to his story about the retreat. When he finished, he asked me a few questions and finally said, “We will be in touch with you.” I said “Goodbye,” and picked up my resumé. He said “We need your resumé,” and I replied, “To be honest with you, I cannot allow my resumé to be left here.” The end of the story is that I joined the cult and, in 1977, started a long, long love affair with Columbia College.

The First Class

The first class that I offered was called “Chemistry in Daily Life.” When this class appeared on the students’ registration forms, it was erased by faculty

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members from their major departments, who told them, “Why do you need to know chemistry? I never took chemistry, why should you take it?” After a few days of registration, I realized that I would not have a paycheck if nobody was in my class, and that I had to invent a way to get some students.

I decided to bribe a group of students into taking my class by inviting them across the street to a very nice bar. As you might know, I am an Israeli and, at that time, Israel did not have a legal drinking age. I was unfamiliar with the restriction in the US. (Had I known about it, I probably would have ignored it, so it did not matter anyhow.) I offered to buy the students a round of drinks, so they joined me at the bar. They ordered their drinks and I started hearing terms like Bloody Mary, Screwdriver, Black Russian, Green Grasshopper and Pink Lady. I thought, “My God, I was sure I understood English, but I don’t understand one word of what they are saying,” and asked for explanations. They responded, “Oh, this is orange juice and alcohol,” and “This is tomato juice and alcohol,” and so on. An inspiration came to me, and I asked, “What is alcohol?” There was silence. Then someone said, “Alcohol is something that makes you feel good.” I then inquired, “Yes, but what is it?” and no one could answer me. I then proceeded to explain to them the chemistry of alcohol. In a short while the structure of ethanol had been drawn on everyone’s paper napkins. After a while, the entire bar was participating in the discussion, and I became so drunk with success—not with alcohol—that I decided to continue. For a little more money, I ordered salad with oil and vinegar for everybody. When the salads arrived and everyone started eating, I asked, “What is vinegar?” Again, no one knew. I told them that it is acetic acid, and pretty soon everyone in the bar had the structure of acetic acid drawn on a paper napkin. At that stage I told them that ethanol and acetic acid can react with each other to form an ester, and this ester is sometimes used as nail polish remover. Everyone in the bar was shocked and frightened, believing that they had nail polish remover in their stomachs. I had to calm them down by explaining that this reaction required a catalyst, and explained what catalysts are. After three or four hours had passed, I made the announcement: “To the ones who will register for my “Chemistry in Daily Life” class, the semester is 15 weeks long and, after today’s session, you only have 14 weeks left.”

This is how I got my first class. I had no need to bribe students after that, because by word of mouth students learned that my “Chemistry in Daily Life” class was one of the most interesting classes at Columbia College (Lerman 1989).

This experience taught me a valuable lesson about teaching chemistry: If you make chemistry relevant to the students’ life, experience, environment, and interests, you can teach them anything you want, even secondary isotope effects. I learned that you have to adjust the methods of teaching to students’ different styles of learning (Kostecka et al 1996).

In 1977, it was unusual to make chemistry relevant to students’ lives, relevant to the environment and relevant to students’ interests. Many chemists were suspicious that I was sacrificing the chemistry in order to attract the students by using these methods. In the 1980s and 1990s, teaching chemistry in a relevant way became the rule, and was no longer the exception.

An art student decided to emphasize in a poster that this chemistry class, with the lively discussions and active student participation, was quite different from the “Chalk and Talk” classes he had experienced before. His illustration can be seen in Figure 1.



Figure 1: An illustration of what is not practised in the Science Institute: “Chalk and Talk.” (Art by Joe Nelson)

Saturation

In the first class, I told my students that because they were not used to taking science classes, they would not have to wait for a break if they felt saturated with

the material. All they needed to do was hold up a sign that read SATURATED, and I would shut up and take a break. To explain fully what I meant, I had my students conduct their first hands-on experiment to explore the phenomenon of saturation. They were provided with beakers of water, and were asked to slowly add sugar to the water, while stirring the solution. The students observed that the sugar dissolved. I explained that this is similar to their ability to absorb the material I was teaching. The students were then asked to continue adding sugar and report their observations. After a short while, they all observed that the sugar no longer dissolved, and the excess settled to the bottom of the beaker. I explained that the solution had reached what chemists call the *saturation point*. Referring to our original analogy, I asked “So, when you are saturated with what I am teaching, does it make sense for me to continue?” They all agreed it did not, and I announced that this is the point when they are allowed to hold up a sign saying SATURATED, and we will take a break. The students next put their beakers on hot plates, and continued to stir the solution. They observed that when the temperature was raised, the excess sugar dissolved so they could add and dissolve additional sugar. I then asked, if they raise a SATURATED sign, will it help them absorb more material if I raise the temperature in the room? Their immediate reaction was laughter, as all agreed that the result would be that they would all fall asleep. I explained to them that this is the point where the analogy ends between the hands-on activity and their ability to absorb information. We continued the activity. The students allowed the super-saturated solutions to cool with a weighted string suspended in the solution. By the next class session, the excess sugar had crystallized, and the students had rock candy (Lerman 1988). This permitted further discussion on crystals and recrystallization. Because Columbia College is an art school, the students were provided with food colouring to add to their solutions, which made the experiment more aesthetically pleasing. The astonishing fact is that my students seldom raised SATURATED signs and did not abuse this privilege and power.

In the workshops we run in the Institute for Science Education and Science Communication (Science Institute)¹ for Chicago public school teachers (funded by the National Science Foundation, NSF), we begin with this same saturation activity and explanation. The teachers love this experiment, and report that they repeat it with their own students, who find it fascinating.

Science in the Media

To show students the importance of having some background in chemistry to be effective citizens in a democracy, I ask each of them to bring to each class a newspaper article related to energy, environment, chemicals, and so forth, and to give a brief summary (Lerman 1986b). This exercise makes it clear that a science background is needed to really understand even the simplest article dealing with scientific phenomena in a daily newspaper. It shows students that science is part of everyday life. It demonstrates how important it is to communicate science correctly, and it develops the habit of looking for science articles in magazines and daily newspapers. I always try to find a way to relate a day’s topic back to the articles students presented at the beginning of class, to add a deeper perception of daily life relevance to the course material.

Projects as an Alternative Assessment Method

Different methods of teaching must be accompanied by different methods of assessing students (Lerman 2001a, 2001b). I had to develop alternative assessment methods in order to adjust to different teaching and learning styles.

When I was a student, from first grade through my PhD, I hated written tests. I resented that in the course of one hour, no matter how I felt, I had to be brilliant to show that I really deserved an A; I promised myself that if I were ever to teach, I would not do this to my students. I often carry with me a story about a very famous Rabbi named Hillel. The story says that a man approached Rabbi Hillel and asked him, “Can you teach me the whole Torah while I stand on one foot?” The old distinguished Rabbi answered, “What is hateful to you, do not do unto your friend. That is the whole Torah, the rest is commentary. Now, go and learn.” Following Rabbi Hillel’s advice, and always considering my students to be my friends, I will not do to them what I hated being done to me. Therefore, my students can show me their knowledge any way they want—by using the tools of their majors, their personal interests, their hobbies, their cultural backgrounds and so on. Students show their knowledge using the media with which they feel most comfortable. A benefit of this method is that

not only the instructor but the entire class participates in the evaluation process. Students spend long hours preparing their projects; they learn much more by producing these projects, they retain the material much longer (Lerman 2001a), and they have a very positive and enjoyable scientific experience (Lerman 1986a). Student projects have taken a wide variety of forms, including dance and musical performances, paintings, sculptures, drawings, short films, theatrical skits, photo essays and videotaped presentations. Many students have later presented these projects in job interviews.

It is significant that this positive experience with chemistry has motivated students to choose careers in chemistry or chemistry-related fields after graduation. One of my former students is now in the final stages of a PhD in organic chemistry, while another recently received a PhD in molecular biology.

These methods of teaching and assessing science were extended over the past 12 years to the Chicago Public Schools, and many inner-city students are now pursuing careers in chemistry and chemistry-related fields. As one teacher has testified, "I believe Zafra's greatest success can be seen in my own students' enthusiasm and new interest in science. Many have gone on to careers in chemistry, chemical engineering, medicine, and pharmacology. I sincerely doubt that any of these African-American students would be on these career tracks if it were not for my own experience with Zafra Lerman and her continuous mentoring."

These methods are also used to teach chemistry in a very nontraditional and informal setting: at night in a dance studio. Four hundred children from low-income families and homeless families gather in a dance studio where one of Columbia College's former dance students teaches dance and I teach chemistry. Twenty of these students (ages 12–16) accompanied me to the 2001 Gordon Research Conference on Science Visualization and Education.² These young dancers visualized scientific concepts for the audience through dance, and received a standing ovation from the international group of scientists (Vermaat 2001) (Figure 2). This program, Feet-On Science, has been in existence for 12 years; this year, one of the former female dancers entered a PhD program in biochemistry. In a television interview 10 years ago, this girl stated "This program has helped me decide on a career for myself; and the career which I would like to go into is: I want to be a biochemist." (NBC-TV 1993).



Figure 2. Young dancers representing chemical concepts visually during a Gordon Research Conference. (Choreographed by Heidi Bauman Renteria; photograph by David Morton)

Examples of Projects

I typically try to provide a historical background on scientific discoveries when teaching a scientific concept, so when we begin the classroom discussion on fission, I mention the first fission reaction performed by Otto Hahn and Fritz Strassman in 1939 in Germany. I then ask the students if the year 1939 in Germany has any significance. This brings us to a discussion concerning World War II, and the students understand different scientific developments in the context of history and geography.

An art student created a cartoon book for children on the subject of fission and the atom bomb; the cartoon is written in a way that the atom is a child who describes to the other children what happens to him when he is being split during the fission reaction (Figure 3). Another book on this same subject was created by a group of art students, with each student creating a separate page of the story, using a different art style.

A television student visualized the same concept in an animated video titled *Little Boy*. Figure 4 shows the computer animation from this project demonstrating the bombardment of a nucleus by a neutron. In Figure 5, exactly the same concept is shown through dance: a neutron (seen in mid-air flight) bombards a nucleus. The concept of the ionic bond is a very popular concept for these creative students to visualize in different formats. One art student represented this concept visually as a nine-page comic book superhero story; four of these illustrations are shown in Figure 6.

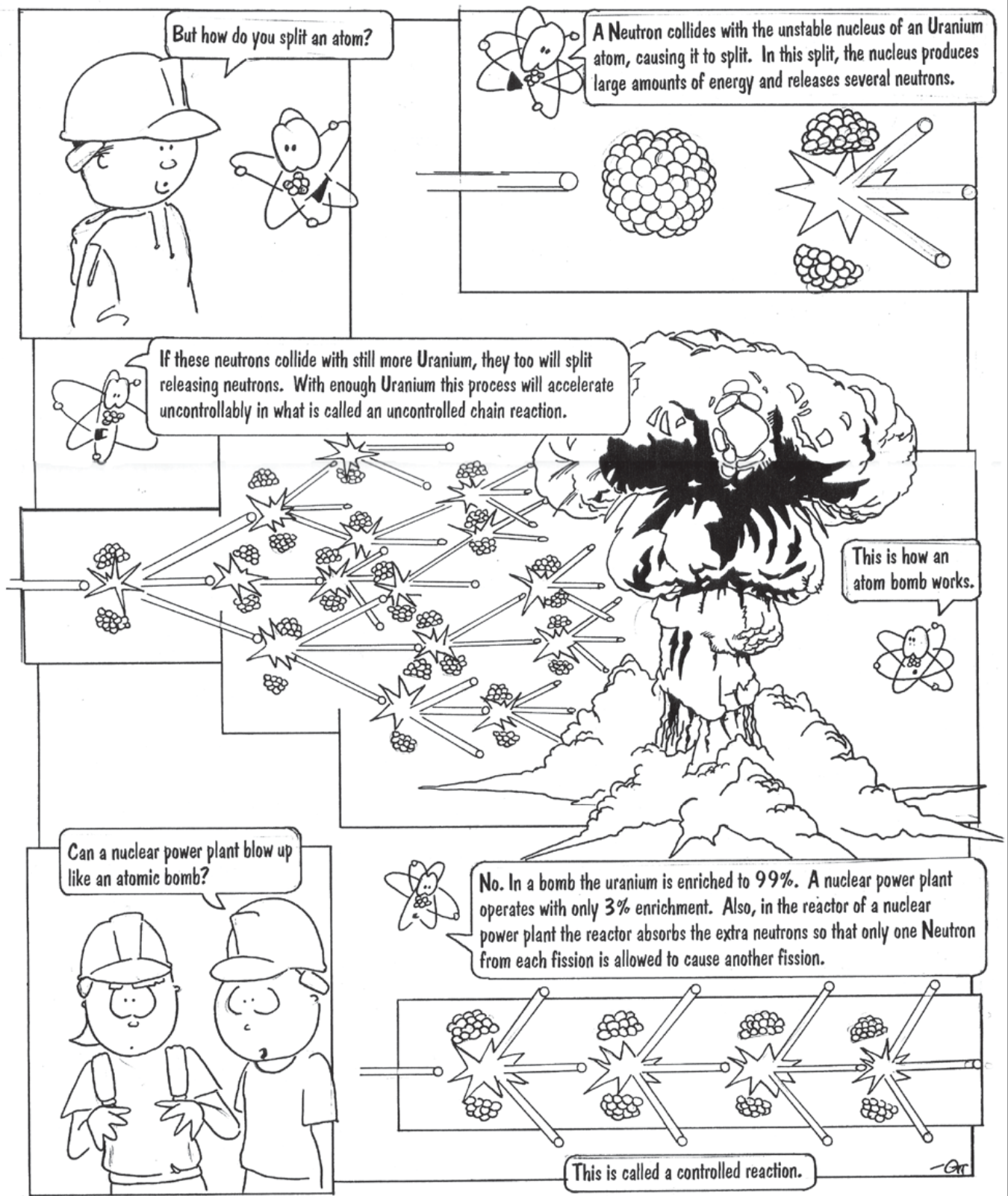


Figure 3. A cartoon depicting the fission reaction. (Art by Michael Ossian)

Transfer of Methods

In order to demonstrate the scientific rigour of the chemistry class, I decided to take advantage of the common perception that if something involved Harvard, Yale, or Princeton, then it must be good. Over the past 17 years, I have chaired the Subcommittee on Scientific Freedom and Human Rights of the International Activities Committee of the American Chemical Society. The original members of the Subcommittee were Tom Spiro (Princeton University) and Jack Shiner (Indiana University). I shared with them my tenet that “equal access to science education is a human right that belongs to all” and, therefore, equal access to science education should become the concern of the subcommittee.

I proposed we develop together a class that we could offer in the three very different institutions: Columbia College (an inner-city, open-admissions art school), Indiana University (a big state school), and Princeton University (a very admission-selective private school). The idea behind this collaboration was that the three institutions cover much of the spectrum of US institutions of higher education, and thus a course developed and offered by this collaboration could be adopted by other institutions (Lerman 2000). We titled the course “From Ozone to Oil Spills: Chemistry, the Environment, and You.” We developed the course with support from NSF, which referred to it as their flagship project. However, to prove that my students covered the same material as Princeton students, every year for the past 10 years I have flown a group of my students to Princeton where we hold joint student symposia. The

students from both institutions present their projects and ask questions of each other. By the end of the day, the two groups become one; they exchange information, make valuable contacts, and promise to keep in touch with each other.

As mentioned above, we work very closely with Chicago Public Schools and offer teacher workshops funded by NSF. For all our projects, the Science Institute utilizes an outside evaluator to compare project results to national standards. Results from these evaluations show how children of teachers who participate in our programs fare against those of teachers who did not participate. The crucial year is fifth grade (immediately before entering US middle school); Figure 7 shows that our project benefited children of this grade, resulting in scores more than 10 times higher than the control group. Another crucial year is eighth grade, before children enter US high school (Lerman 2001b).

Dissemination of Methods

These methods have helped in the public understanding of chemistry through many formats. Both the electronic and print media in the US and abroad have reported extensively on this approach of teaching, learning, and assessing science. On many occasions, these reports have featured examples of projects and interviews with students. For example, The Honorable Richard Riley, Secretary of Education during the

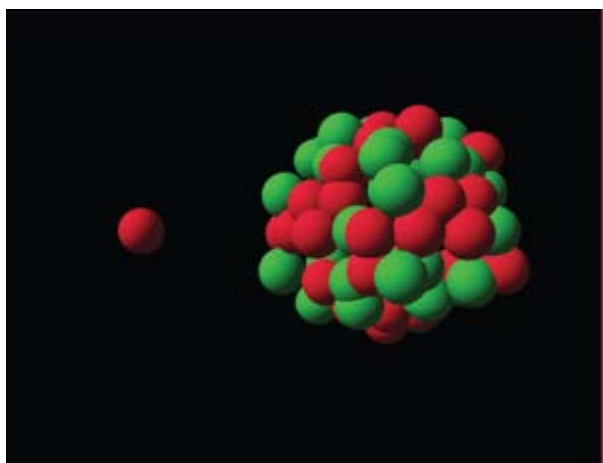


Figure 4. Computer graphics visualization of a neutron bombarding a nucleus. (Graphics by Todd Ripplinger)



Figure 5. Visualization through dance of a neutron bombarding a nucleus. (Choreographed by Heidi Bauman Renteria)

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Clinton administration, requested a video that would show examples of projects created by Columbia College students, Chicago Public School teachers, and Chicago Public School students. This footage was shown when he addressed the public in a satellite town meeting aired on public television through PBS and was viewed by an

estimated 20 million people. This was a great compliment and acknowledgment to have a Secretary of Education address the public on the importance of using the arts to teach science, and using the Science Institute's projects as a creative and innovative way to accomplish this.



Figure 6. "Ionic Bondage," depiction of the ionic bond. (Art by Joe Nelson)

Acknowledgments

I thank all the students at Columbia College Chicago who attended my classes since 1977, who inspired me to forget the traditional methods of teaching and develop creative methods of teaching, learning, and assessing science. I could never have done what I did in any other place in the world. So to all my students, wherever you are: Thank you.

Thanks also to my students for the illustrations that appear in this paper. Everything seen was created and produced by them, as there is no better way of learning than by doing.

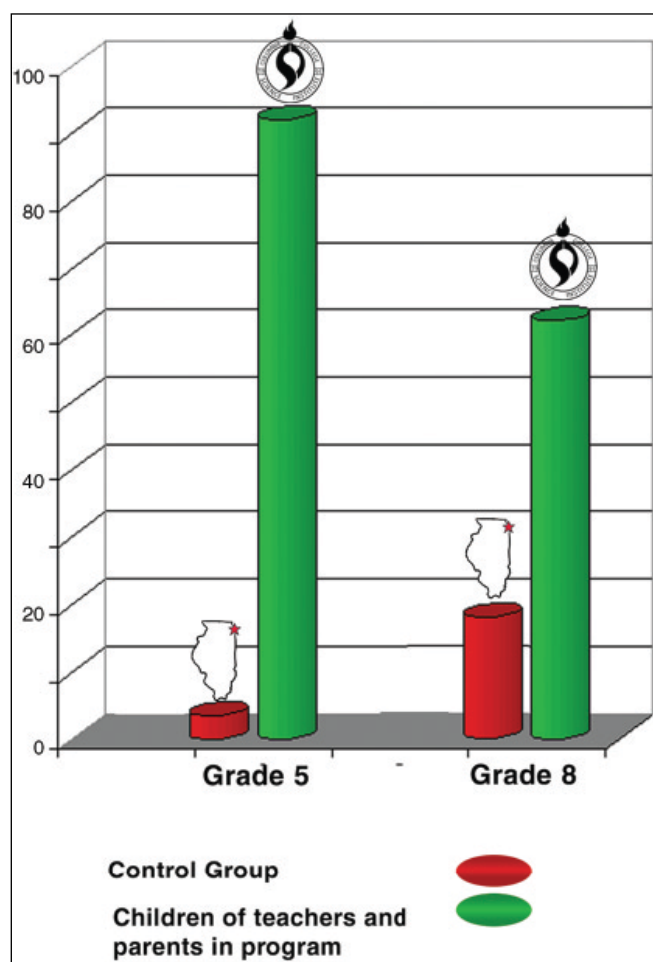


Figure 7. Comparison of fifth- and eighth-grade student achievement of teachers who participated in Science Institute teacher workshops (represented by Science Institute logo), with students whose teachers did not participate in the workshops (control group, represented by a map of Illinois). (Statistical information by Jon Miller)

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Thanks to WPWR-TV Channel 50 Foundation for support in taking dancers to the 2001 Gordon Research Conference on Science Visualization and Education.

Notes

1. The Institute for Science Education and Science Communication (Science Institute) was established at Columbia College Chicago by its president, Mirron Alexandroff, to design new initiatives in science and public policy, science communication and science education.
2. The 2001 Gordon Research Conference on Science Visualization and Education was held at Mount Holyoke College, in Massachusetts. The students accompanied me at the invitation of Loretta Jones, the conference chair, and with the financial support of the WPWR-TV Channel 50 Foundation.

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Submitting to *A Fine FACTA*

Add the goal of being published to your teacher professional growth plan and submit something to *A Fine FACTA*! Submissions may include the following:

- Practical classroom tips, lesson plans and rubrics
- Resource reviews
- Movie and book reviews
- Personal reflections on classroom experiences
- Stories and poems by teachers, students and student teachers
- Student artwork

Please include a short (three- to five-sentence) biography and your address so that a copy of the issue in which your work appears can be sent to you.

Submit signed permission forms for student work or photographs of students.

Send submissions to Kathy Oviatt, PO Box 836, Magrath, AB T0K 1J0; e-mail kroviatt@gmail.com.

Permission to Print Photograph/Student Work

Your child has submitted a piece of work or appears in a photograph that we would like to print in the next issue of *A Fine FACTA*. *A Fine FACTA* is a journal that goes to teachers across Alberta who are members of the Fine Arts Council of the Alberta Teachers' Association.

By signing below, I give permission for my child's work or photograph to be considered for publication in an upcoming issue of *A Fine FACTA*. This permission form will be forwarded to the journal editor.

Parent/guardian name _____ Signature _____
Student name _____ Signature _____
Teacher _____ Signature _____
School _____ School location _____

Notes to teachers:

- When submitting student work, please include the Permission to Print form with all signatures completed. Send the student work/photograph and the permission form to the editor of *A Fine FACTA*, Kathy Oviatt, PO Box 836, Magrath, AB T0K 1J0; e-mail kroviatt@gmail.com.
- Work may be submitted electronically to kroviatt@gmail.com. Please ensure that the permission form is mailed to the address above.

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