



AURORA HighLIGHTS

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a newsletter for members of Aurora

Words from the Director

What a year! Aurora Project Peer Facilitators reported several lessons learned at their respective sites during the fourth year of the project.

First of all, they reported that all teachers involved made progress, some with baby steps and others like giants, with training being the most significant reason cited for the progress. Aurora personnel learned early that what works best with teachers is "at-your-elbow" training (one facilitator's words). Small groups are necessary, too, because they are less threatening to individuals who are not computer proficient.

Next, facilitators noted that the infrastructure had to be in place to foster a sense of security for creators. Ironically (although stated differently), some said infrastructure is the easiest part of the project. One suggested that more communication about the different aspects of Aurora is needed.

Two major lessons learned are that teachers should not be hurried and that they want solid substance. Further, teachers are not interested in monetary rewards (to



Gary Sacket

write lessons or to field test activities). However, teachers DO respond when they can see the benefits to their students. Therefore, the people deeply involved with the Aurora Project, who clearly see all its present and potential benefits, learned that they must continue using the software, while encouraging and helping others to gain the rewards.

Taking these lessons and many others to heart, we will be working hard and long this summer to incorporate them into Aurora dissemination materials and the Aurora Community server itself.

The final version of the Community server will become available before school begins this coming year. We have gathered extensive feedback from you all about how the Community server can be improved. This, combined with significant revisions of the web pages you interact with on the site, will lead to much improved user experience. You have taught us much this year.

Come August, get ready for a ride! GeogWeb activities are going "green," ready for wide distribution and use in a number of Aurora Communities being established in several states, including Texas, California, and potentially, many others. Oklahoma will be impacted further through communities being set up by professional organizations, three universities, and countless public school communities. This, not to mention Aurora's own Community.

Importance of Aurora in a School's Curriculum

A recent progress report of Aurora school partners, conducted by the Center for Educational Evaluation and Research, revealed these preliminary results from teachers:

91 percent enjoy teaching with technology more since Aurora;
91 percent feel that their teaching has been enhanced generally;
90 percent make use of a wider range of instructional resources;
84 percent say they have received both User and Developer training;
80 percent integrate more technology into their instruction; and
71 percent regularly use technology to assess student performance.

The majority of the teachers feel that the Aurora tools and activities help extend learning opportunities beyond the traditional classroom. Additionally, they note that since using Aurora, their students demonstrate more enthusiasm towards learning.

Rebecca Zittle, Aurora Project evaluator with CEER, reports the following comments from teachers:

"I'm excited about using and developing Aurora projects."

"Aurora has greatly enhanced my use of technology and community content in my fourth grade classroom."

"I look forward to using more activities. I feel this will help, especially if I can begin a school year with it."

"Aurora has evolved into a learning environment useful for all age groups and academic levels. Excellent resource!"

Oklahoma IS number one . . . and we're not talking football !

Oklahoma's weather network is nothing short of phenomenal, and the place to find anything dealing with weather is the Energy Center at the University of Oklahoma.

Luckily for the Aurora Project, specialists there provide expertise and guidance on Aurora's varied curriculum. In fact, one of Aurora's partners - the Oklahoma Climatological Survey - is housed at OU's Energy Center. A state agency, the OCS gathers climate data from the national climate center, state agricultural cooperative centers, and an automated system - the Mesonet.

"The Mesonet is the premier network of its type...and serves as the model for many other states and countries," said Aurora Project Director Gary Sacket. "It provides information for improved decision making in agriculture since the weather and climate are critical variables in agriculture and natural resource management."

Governor Henry Bellmon helped establish the Mesonet, Andrea Melvin, Program Manager, K-12 Outreach, the Mesonet Project, said recently during a break from work.

"OU wanted to have something for gathering data, and OSU (Oklahoma State University) wanted data on when to plant crops," she said. "So

the two universities, working from two different angles, got together. We have a meteorology school and all kinds of weather through here (Norman), so this was a good place to have the weather network."

115 towers for collecting data were set up statewide, at least one in each of Oklahoma's 77 counties. Ten meters high and located on a ten-by-ten meter area, each tower is run by solar power and radio waves, with no electric or telephone lines. The tower's instruments measure air and soil temperature, relative humidity, wind speed and direction, wind gusts, dew point, solar radiation, pressure, and rainfall amounts.

Addressed by the Mesonet are such issues as droughts, floods, pressure systems, condensation/evaporation, and storms.

"We get the data from the 115 sites," Melvin explained, "and quality assure it to make sure the instruments are working properly. Then we piggy-back on the Oklahoma Law Enforcement telecommunications network system to get the data out to the public. We update the data every 15 minutes."

This 15-minute update interval is important, Melvin said, because the national weather service, which has 12 Oklahoma sites, does only hourly updates.

"A lot can happen in an hour," she said.

Fifteen minute updates are also important, she explained, to a fire chief who is checking wind gusts and direction, a utility crew which needs to pay attention to heat index or wind chill, a farmer who wants to pinpoint something about a crop, or a road crew that has to know about de-icing conditions.

"TV stations use our data quite extensively," she added.

According to Melvin, in 1992 the National Science Foundation provided funding for an outreach program called Earth Storm. "That is how we met Gary Sacket, because he was a

co-PI (Principal Investigator) for the NSF grant."

Climate data and lessons created for teachers are found on the Earth Storm web site, and Aurora lessons can be linked to them and to Earth Storm, Melvin noted. The address is <http://outreach.ocs.ou.edu/>. Additionally, Melvin has created an important tool for Aurora's curriculum, entitled "How Do I Obtain an Oklahoma Mesonet Account?"

Other specialists at Mesonet, including Renee McPherson, have written many tools and activities for Aurora, while teachers statewide, in turn, continue to create a wide audience for the Mesonet, by using its resources. Thus, the long association and collaborative partnership between the Oklahoma Climatological Survey/Mesonet and Aurora continues.



With over 115 reasons to be proud of the Mesonet and its awesome features, Andrea Melvin shows where teachers or others may go for accurate weather information.

Modifying for Special Needs -- 'Teach Them the Way They Learn'

"If children do not learn the way we teach, then we must teach them the way they learn." —Rita Dunn

Southwestern Oklahoma State University Special Education Instructor Debbie Keasler put Dunn's principle to work in a tool she wrote for the Aurora Project entitled "Modifying Lessons for Special Needs." It gives instructions on how to modify regular lessons: teach special needs students the way they learn.

To test her Aurora lesson, Keasler took her university class to a computer laboratory, where each future teacher selected two or three Aurora activities from the nearly 2000 posted on Aurora's website - www.auroraok.org. Most decided on a curricular area they liked, such as math or art, before going to the list of lessons and picking ones with interesting titles or abstracts. Some chose randomly.

"This lesson provides the opportunity to practice modification of a lesson appropriate for the student age group with which you have had contact in your practicum," Keasler wrote to the future teachers in the lesson's instructions.

"A modification might be as simple as printing a lesson larger or bolding important words," she said. However, because they had worked with children with different types of learning disabilities, the college students were able to pinpoint exactly how the lesson needed to be changed - to suit an auditory, visual, or tactile/kinesthetic learner, as needed.



Students ranging from kindergarten through college, such as senior Special Education major Michelle Hawthorn, above, benefit from technological and other aspects of the Aurora Project.



Before starting work on the Aurora lesson modification, Charmaine Kemp and Cortney Sauer discuss the assignment with instructor Debbie Keasler.

Some changed the lesson's written instructions to oral, with short answers suggested for responses and shortened instructions. Others added frequent breaks and concrete positive rewards. Repeated review and drill were also common in the modifications, as were directions written in a variety of ways. Some suggested peer tutors and help with notetaking, while others just simplified the text for their lessons.

As an example, for one of his lessons to modify, Kale Rogers, from Thomas, Oklahoma, picked an Aurora eighth grade lesson called "Finding Your Body Mass Index."

"I would use this lesson as an ice breaker, to get the kids' attention. I would let them calculate their height and weight, but convert meters and kilograms to yards and pounds," he said, explaining that special needs students might have a hard time with the metric system, yet could grasp the concept of feet, inches, pounds, and ounces to determine their body mass.

"A lot of these kids work with their fathers and talk about things like yards. This would relate back to that," he said.

Keasler's college students gained valuable skills while modifying their lessons, but the special kids in their classrooms in the future will receive the true benefits.

Sing a Song and Learn Some Facts

Music, music, everywhere,
Kids sing in harmony.
Music, music, everywhere,
Learning facts from A to Z.

Angie Bruno, from Hugo, integrates music into the classroom in a way that is familiar to everyone. Remember the alphabet song? Or any number of biblical tunes for teaching the apostles' names, testament books, key concepts, and Bible stories? And do you remember when you learned that the thigh bone's connected to the knee bone?

Bruno takes music a step further, though, by writing instructions on how to use songs in a lesson with facts. She explains it all in an Aurora tool that teachers may find in the Aurora curriculum.

"You use key concepts, like the continents and oceans, water cycles, or the fifty states, and put them into a song," she explains. Any song can be selected, but "The Three Little Indians" is the one she suggests in the tool she entitled "Music, Music Everywhere."

Bruno says her kids love being able to learn facts through songs, and that they also use hand signals to enhance learning. "Of course when we did the lesson for the Aurora activity, the thing the kids liked most was getting to be video taped," she said. "We did three



Angie Bruno has a problem that many special programs teachers have. She has each student only twice a week, and for only twenty minutes. So much to know, but so little time!

different songs that I video taped for the 'Music, Music Everywhere' lesson. They thought it was just great because they could be seen by other people on the computer."

Hugo peer facilitator Aileen Parnell noted that Bruno is very, very good at writing tools, which teach others *how* to do something, such as how to make a magnetic compass, a salt map, and a landform, all tools that Bruno has written.

"The tools are easy to write, but the activities are harder," she explained. "They take a long time because I always think of something else to put in. All tools and activities are lessons that I have used in the classroom."

An elementary education alumna of Southeastern Oklahoma State University, Bruno is now in her seventh year of teaching at Hugo. With luck, the schools there will be hearing her songs for years to come.



Bruno is an Aurora member who takes the work seriously. Here she shares her knowledge with others by conducting a session at a conference at Rose State College, one of the many training workshops provided for Aurora teachers in the last 3 1/2 years.

'We're All in This Together'

Three Teachers Work Toward Common Goal

An old axiom asks "How do you eat an elephant?" and answers "One bite at a time."

Three Fairview fifth grade teachers took this to heart recently. No, they didn't eat an elephant, but they did something equally remarkable: they combined their language arts, math, and science courses of study, giving all three a local focus, and came up with an exciting learning experience for their students.

Their collaboration began March 18, when they picked an Aurora tool "How to Conduct a Survey" and had their fifth graders name the five needs of their town. Math teacher Cyndy Glover worked with the kids to help them create several types of graphs and tables, including a pie graph of their results: water, money, energy, shelter, and food.

"The idea of a graph is not just to be able to read it, but to be able to understand it, to write about it," Glover said. Therefore, next on the agenda, English teacher Vicki Woods guided them in writing five-paragraph papers explaining their graphs.

When the students started discussing how the town's needs affected them, their study led to research over the ecosystem. "We talked about food and about animals - what they do and where they live," said Rani Smith, the students' science teacher. "We studied the food web, the food chain, and made animal models. We got magazines to cut things from to show the ecosystem of an animal - the trees, water, sky, things in the environment...We could have spent the whole year on this."

The environment was actually covered "hands on" by the kids, as they picked up trash, planted plants, and visited the water treatment plant. They even kept their trash in bags for a whole day to weigh their disposables. "We're all in

this together," said Glover.

Woods agreed. "They learned about cause and effect," she said, "which is very hard to teach. A writing prompt was 'It's Your Trash: What Are You Going to Do About It?' They wrote a lot, and when they wrote a story from an animal's point of view, they had to think like an animal and identify its behaviors."

All three teachers said the Aurora les-

"The only problem the fifth graders had was with typing," Woods noted. It would be good, all three said, if high school students or parent volunteers could help students enter their results into the Aurora data forms.

"It's a very user-friendly site and it was easy for the kids to get on," Woods said. The fables her students wrote, like all other Aurora products, can be viewed on the web site, under Fairview's lesson "Results." It makes for interesting



Teachers Cyndy Glover, Vicki Woods, and Rani Smith collaborated on several Aurora lessons, making learning challenging and fun for their students, including Robert, Jesse, and Hannah, at back, and Jared and J.T., in front.

sons provided tremendous learning experiences for the students. "They were always going downstairs to get books on the ecosystem or reading non fiction books about different animals and their habitat," said Smith.

Teachers are continually trying to get everything into their lessons, and this way all the different areas overlap, the teachers noted. The spelling words came from the lessons, as did writing, math, science, and geography, the basis of the entire study.

reading, especially for parents, grandparents, or fifth graders in other places.

Obviously delighted with the learning experiences, the three teachers said their kids kept asking things such as, "You mean my grandmother can go in here (to the web site) and see my story?"

"It's such a neat way to share," Woods concluded. "Always before, the kids' work has just been in books or they've just read (their papers) to each other. Now they can share with the world."

Bishop McGuinness Seniors End Year Working with Aurora

Ironically, Bishop McGuinness High School teacher Leslie Byers described the Aurora Project and its three-and-one-half year progress as a "long, strange trip." Why ironic? Because an activity she conducted with a class of twelfth graders on one of their last days of school was entitled "Are We There Yet?"

Byers said students in her Advanced Placement European History class spent their last week of school doing Aurora activities because, after completing their regular coursework and taking



Leslie Byers, a Political Science graduate of Tabor College, in Hillsboro, Kansas, has just completed her eighth year at Bishop McGuinness.

the AP examination, they were anxious to do something different to cap off their year.

"With Aurora activities you get the kids engaged, even when they are burned out, like at the end of the year, after they have been studying for exams. It's because they are involved," she said.

On the day of the "Are We There Yet?" activity, Byers' students came into the library, which she had reserved for the hour, and quickly headed for the computers, where they began looking for distances from McGuinness to other schools around the state.

"We're looking at how far our sports teams travel, comparing distances of the soccer, football, basketball, and other team trips," Byers explained. "We want to see which ones spend the most time traveling. Some travel the farthest but don't have as many games. So it's interesting."

They used various resources (some with web links listed in the Aurora lesson) to find school addresses. They then determined exact mileage and filled out evaluation forms at the end of the lesson so that Byers could make necessary changes in the activity for those who use it later.

Some students commented that the lesson's

material was interesting but the purpose unclear. "It was void of critical thinking, more of an observation of computer skills," one wrote, "but it did provide an interesting set of facts to know."

Another said, "I would definitely recommend this for the coaches and players or for (figuring) the school budget. They would know how much gas money would be needed for each team and could divide it accordingly."

Looking over the comments, Byers said she knew the kids would be honest in their appraisals. "I didn't want to do a lesson with data just to use data, but to get the kids to think outside the box," she said. "I didn't want them to look at the teacher as the expert on this, but to know that we're all in this together. It takes a student to think of something different, and teachers can learn so much from them. We get such tunnel vision that after a kid asks something, I say, 'Why didn't I think of that?'"

A peer facilitator, Byers helps other Aurora teachers at McGuinness and the rest of the Oklahoma City Catholic schools in their activity development. "Some I work with one-on-one, and others I just edit their work and then e-mail them and they work on their own," she explained.



Students stay engaged when the work involves computers. This one deals with sports, too!



Byers has developed nine Aurora lessons in addition to the one on team travel that she tested with her senior AP history class.

Because she has been with Aurora since its beginning, Byers has witnessed the ups and downs of the \$5 million project. "It's amazing to see the development, to see the progress. It's an amazing tool for teaching. It's too bad that all the ones who started out the first year can't see what it's like now."

Having been on the long, strange trip, she knows what other teachers and students know about information technology and learning: we're not there yet but we're NOT standing still!

Lake View: Seeing It from a Different Perspective

Wally Gillespie wants, in his words, to get his students off their front porches and into a larger environment - at least through virtual reality.

His Aurora Project lessons are designed to help students see the broader world. One activity he wrote entitled "Does Your Lake Flux?" concerns something only ten miles away - Lake Hugo. Yet his intention was for his students to compare data collected from their lake to that of lakes found worldwide.

"I wanted the kids to be aware of their environment but also to think of why things change," he said. "I thought it would be interesting to know what factors cause the lake to go up and down. I knew the lesson would build. It started out real simple, but got harder as the kids started making assumptions. Did the rain cause the change, or was it

something else? If it's like Lake McClellan (near Tulsa), it's about ships and keeping water in the channel."

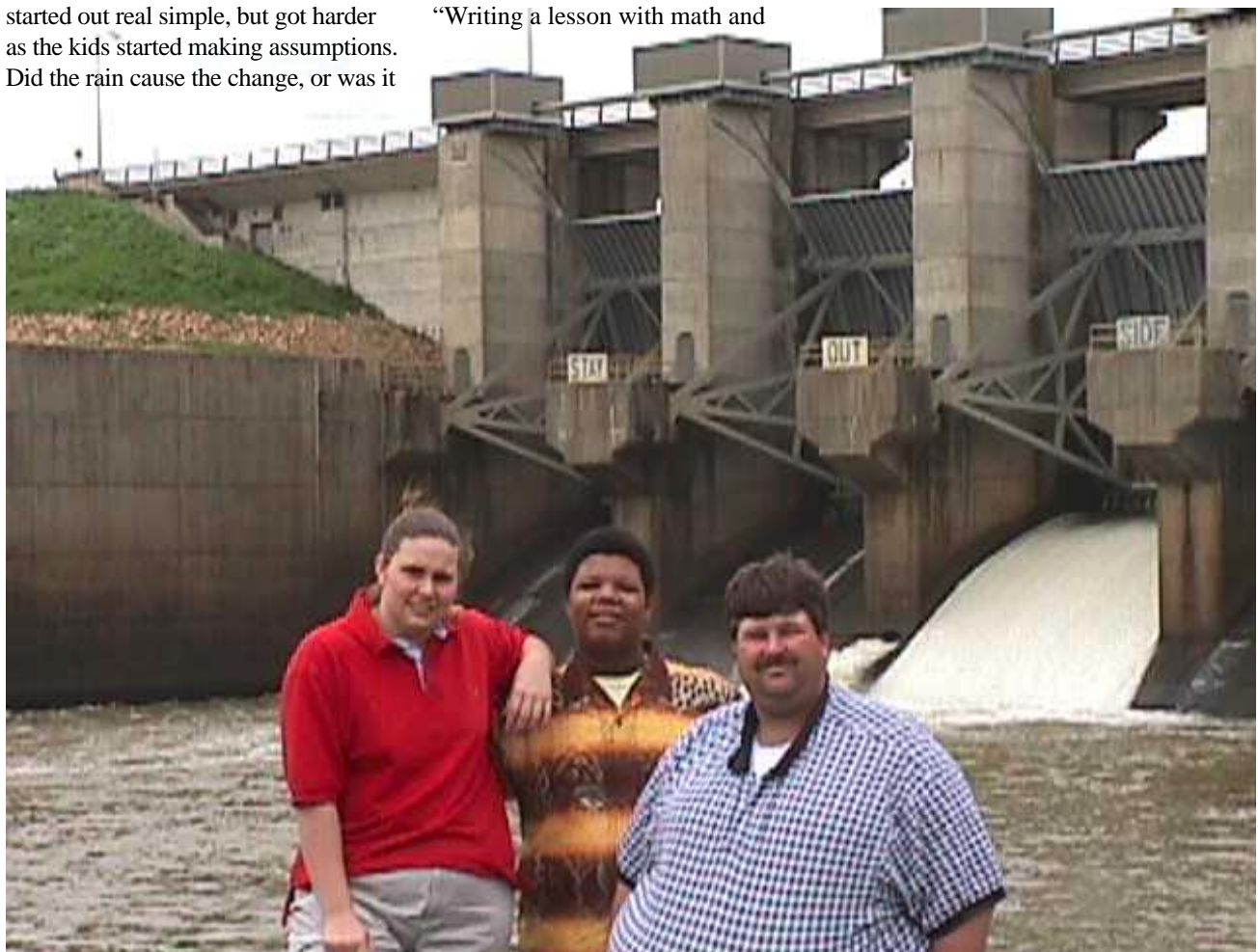
Gillespie said Hugo Lake Director Gary Cannon began working with Aurora teachers in 1997, the first year of the project, helping them learn to access from the lake's web site the data that is updated and posted by the United States Corps of Engineers every hour.

Students quickly grasped the correlation between math and geography, although Gillespie said this had initially been the difficult part for him.

"Writing a lesson with math and

geography put together was tough, but then I started thinking that we could look at our lake and make comparisons to other lakes. The neat thing is we could look at the web site and find out how much the lake changed in a day. We could then look at Mesonet data and plot it all on a graph."

After studying their lake from a different perspective, Gillespie's students see something there besides water. They now think of scientific facts and the lake's place in nature - its rise and fall, ebb and flow, aquatic life, and pollution problems. The kids definitely expanded their horizon beyond the front porches of Hugo.



Jessica Queen and Allen Webster were two math students of Wally Gillespie (at right, above) this year. They and other students of his benefitted from the Aurora lesson on dams. Lake Hugo Dam, located ten miles northeast of Hugo, is seen in the background.

Aurora Calendar

- June 4 - Board/PF Meeting
- June 7-9 - Curriculum Development Session, SWOSU, Weatherford
- June 10-12 - ODLA-OTA Conference, Myriad, Oklahoma City
- June 15 - NWOSU Training Conference, Alva, Oklahoma
- June 25-27 - NEC Conference, Chicago
- July 10 - Board/PF Meeting

Meetings are at Bishop McGuinness High School in Oklahoma City, unless otherwise listed.

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