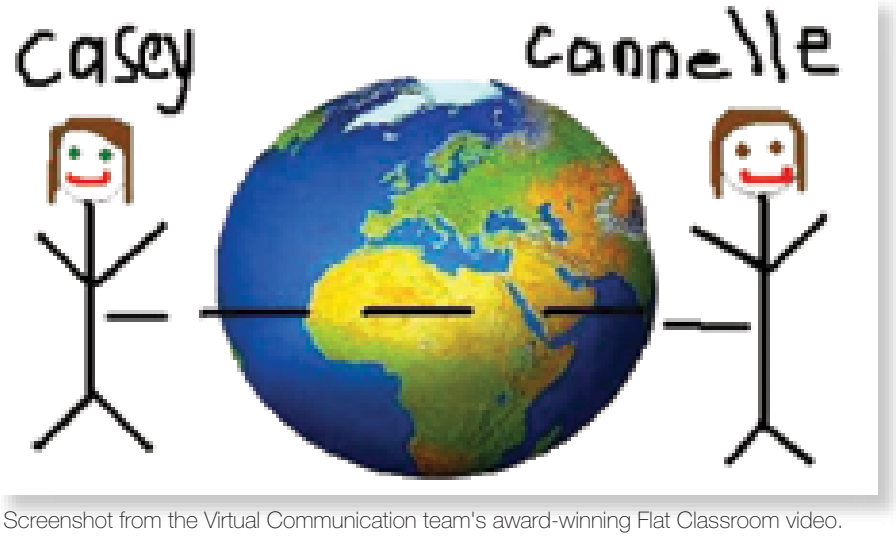
Flat Classrooms

By Julie Lindsay and Vicki Davis

In November 2006, we eliminated the walls of our high school classrooms. We embarked to create a joint semester assessment to analyze the trends of information technology and ended up on a journey into excellence and into the very future of education itself.

This wiki-centric collaboration, aptly named the Flat Classroom Project, analyzed the 10 societal trends from *The World is Flat* by Pulitzer Prize-winning author Thomas Friedman. Not only did this project win the 2006 International Edublog Award for best wiki in education, but Friedman followed the project development with much interest and awarded signed copies of his book as prizes. Students formed bonds with those very unlike themselves, and our objectives were far exceeded.



Screenshot from the Virtual Communication team's award-winning Flat Classroom video.

Why Did We Flatten Our Classrooms?

We wanted to challenge our students to have a deeper understanding of the effect of information technology on our world. We wanted our students to not only study the flatteners but to literally experience them. This influenced not only the questions we asked, but also the Internet tools they were asked to use as they interacted. For this project, we created classroom-specific, criterion-based rubrics to allow each classroom to assess this as its cumulative end-of-semester project.

How Did We Flatten Our Classrooms?

Using a joint wiki, we paired students with a global partner to explain the trend, give their viewpoints, and create a video including footage "outsourced" from the partner. To start the project, every student posted a podcast introduction. We intentionally chose voice communications to prevent students from having preconceived notions about each other.

After "meeting" their partners, students planned their topic using asynchronous tools such as the discussion tabs on the wiki pages, MySpace, and e-mail, and synchronous tools such as Skype and instant messaging. This level of student autonomy had its difficulties—students who were absent or slow to communicate would frustrate their overseas partner. As teachers, we had to monitor this closely and adjust groups so that project deadlines could be met and we could be fair to everyone.

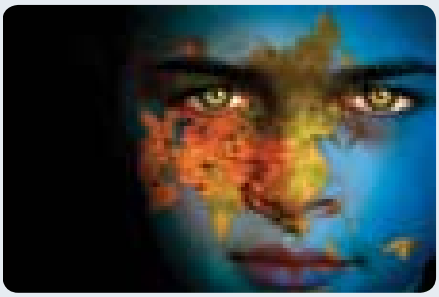
This project had all of the real-life flavors of a genuine job assignment or major post-secondary school project with deadlines, accountability, and interdependence. One student said that this project "made me more professional."

One of the most exciting things, however, happened at the conclusion of the project, when expert judges Jeff Utecht (China), Terry Freedman (United Kingdom), Jo McLeay (Australia), and Darren Kuropatwa (Canada) judged the wikis, and presented awards for best wiki and best video. Additionally, they advised us on how to make such a project more scalable and more effective based on the most current educational research.

Embedding Social Learning

This project has reinforced our belief that learning takes place in many different ways, times, and places. It also shows us that the single-classroom research that emphasizes the effectiveness of collaborative learning, genuine assessment, and project-based learning can occur when students have partners that are never in class at the same time. Additionally, social learning research has shown us that the sociability of online learning combined with interac-

Flat Classroom Students Speak Out



Student opinions on these trends are very direct, opinionated, and sometimes surprising. Find the entire wiki at http://flatclassroom project.wikispaces.com.

"Being able to access the Internet and the WWW has greatly impacted business and is continuing to revolutionize industry in our world. In agriculture alone we now have satellite-guided tractors, computer controlled chicken houses, and our cars even tell us whats wrong with them."

—Naimul (Bangladesh), Tyler (U.S.),
Connecting the World Online

"The impact of the World Wide Web on education is immense. Imagining life nowadays without the web is impossible. In the past, people had to find information through books...waste hours and hours of time sitting in the library..... But nowadays, the information comes straight to our computer or laptop with the help of the WWW."

—Salvi (Bangladesh), Trey (U.S.),
How the World Wide Web Changed the World

"Laptops, handhelds, wireless internet, and many more devices help educators and learners have an easier time in school. If we look at some schools over the world that have these technology in school then we can see that the students are quite successful as they are walking around with these devices all day, and they have all their work in one place. As a matter of fact I am sitting in an area in front of the school garden and writing this now."

—Salmaan (Bangladesh), Andrew S. (U.S.),
Mobile and Ubiquitous Computing

"Although we did know what blogging was a few years back, it was seen just as a site where teens go to meet new people online. But things have changed and now more people encourage blogging as it enhances learning ... helps them to establish communication with others so as to share information, knowledge and resources."
"Blogging has cost bloggers their jobs because they talk about confidential information about their work place....However, blogging can also be very useful in the work place...to learn about other businesses around the world and find out new ideas that could improve your business."

—Sanjida and Sabbab (Bangladesh),
Jordan and Kristy (U.S.),
The Changing Shape of Information: PLEs and Social Networking

"A company with work flow software does not have to rely on one set of employees from one country instead they can use employees all over the world because of the time zones. If a major tragedy happened in the United States the companies with work flow software could rely on their employees in other time zones to keep the company making and producing product."

—Adnan (Bangladesh), Drew and Ty (U.S.),
Work Flow Software

"When schools are closed due to political situations (as they are sometimes in Dhaka, Bangladesh), online tutoring companies, such as Tutor.com, allow students and online tutors to communicate. It is effective because it is faster for people to communicate and respond to one another."

—Cannelle (Bangladesh), Casey (U.S.),
Virtual Communications

"Web 2.0 is a term often applied to a perceived ongoing transition of the World Wide Web from a collection of websites to a full-fledged computing platform serving web applications to end users. Ultimately Web 2.0 services are expected to replace desktop computing applications for many purposes."
"In some of the schools it is said that these communicative softwares are blocked and not permitted in the school premises, but the question arises, is it fair on the students as well as the teachers or are we still sticking with our old school methods?"

—Shakila (Bangladesh), Matt (U.S.),
Why We Should Be Promoting Web 2.0

"Tools for Sharing Information "Outsourcing started in the 1980s....[It] is when we use labor or components from outside suppliers...Most computer companies do not manufacture all the components used to assemble their computers, instead they depend on components for other companies for parts or hardware such as hard drive, cd-rom drive, etc. U.S. computer companies have established manufacturing and development in countries such as India, Malaysia, Thailand, and Mexico, this is where labor is inexpensive but of good quality."

—Salma (Bangladesh) and Katie (U.S.),
Globalization and Outsourcing

"Recently Google has shown an interest in Open Source, and it's stated in an article that it will soon be the "Godfather" of Open Source... Google is currently more than just a search engine; it has become part of our daily lives. It is used by over a billion (1,000, 000,000) users daily from around the world."

—Omar (Bangladesh) and Andrew G. (U.S.),
Google Takes Over the World

tion can help promote understanding. It was not two classrooms working independently; it was one classroom with two teachers who just happened to be on opposite sides of the world.

Focusing on the Students

Student outcomes from this type of project are often unpredictable. All the planning and organization in the world (literally) cannot force two or more individuals to get along and meld into a cohesive and collaborative team. We saw incredible synergies happen between teammates who had adaptable personalities and motivation, perhaps most evident with the Virtual Communication team, Casey and Cannelle (or the C-team, as they called themselves). Not only did this team win three awards but they also collaborated on a joint introduction video to their topic that offers a glimpse into the excitement that can occur.

Where Do We Go from Here?

As we worked through this project, the exciting global possibilities continued to capture our interest. How could such a project be scalable and be easy to manage and administer? How can we bring in new teachers, be inclusive, and match appropriate classrooms without being overly cumbersome? How can such projects be assessed and judged by other teachers and peers in a way that is time-efficient and productive?

Accordingly, we established three primary areas of improvement for the next project:

1. A unified assessment rubric that more adequately reflects the tasks and the promotion of higher-level thinking.
2. A simplified judging/feedback system that integrates peer feedback and spreads out judging.
3. Initiating communication that involves a cultural exchange between global partners early in the project.

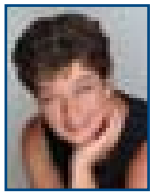
Classrooms can be flattened as teachers blog and reach out to those who share a common curricular perspective. Our highly connected world gives educators the global imperative to connect our people. Flat classroom projects have the power to produce world-class students with a world view based on understanding, not misinformed bias from the media. It will require many hard-working, well-informed, ethical, diligent teachers and visionary administrators to give them the framework to operate. How about you? Will you be an advocate for a flat classroom project at your school?

Note from the Authors

Indeed, while writing this article we are working through our most recent collaboration, the Horizon Project, including three new amazing globally minded classrooms in Austria, China, and Australia. Many of the best minds in education have partnered to advise and share with us how to effectively and efficiently collaborate. The rubrics have been extensively rewritten, and other added features include student project managers, a keynote speaker, expert reviewers, class peer review from around the world, and a student presentation summit in Elluminate.

Resources

123 eLearning, Julie's blog: http://123elearning.blogspot.com
Cool Cat Teacher, Vicki's blog: http://coolcatteacher.blogspot.com
Flat Classroom Alignment with NETS Standards Video: http://video.google.com/videoplay?docid=1655320378680486235&hl=en
Flat Classroom judging wiki: http://flatclassroomjudging.wikispaces.com
Flat Classroom Project: http://flatclassroomproject.wikispaces.com
Flat Classroom Project Overview Video: http://youtube.com/watch?v=Xgc7ERRrLmQ
Horizon Project: http://horizonproject.wikispaces.com
Podcast interviews with the Flat Classroom judges: http://flatclassroom.podomatic.com/entry/2007-01-20T06_07_55-08_00
Virtual Communication Student Team: http://flatclassroomproject.wikispaces.com/Virtual+Communication



Julie Lindsay is an international educator and exponent of online learning and global projects. She recently moved from Bangladesh to take up the position of Head of IT at Qatar Academy in Doha. She has presented at international conferences on digital literacy and Web 2.0 objectives. She is a member of the ISTE International Committee and writes for L&L*'s Bloggers Café.*

Vicki Davis is a high school teacher and technology administrator at Westwood Schools in Camilla, Georgia, and is an award-winning edublogger. She has presented at international conferences on wiki collaboration and Web 2.0 technologies, and is a member of ISTE, CSTE, and writes for TechLearning.com.

Performing Arts

Using MIDI in Music Classes

Gaylord Richardson has been turned on to music education since he, as a seventh grade ensemble member, was part of a live recording session. He still remembers the titles of the songs included on the album produced by his music class. Now, 20-some years later, he is inspiring his students to compose and record their own pieces, supported by a MIDI keyboard lab.

Richardson's classroom contains a dozen MIDI keyboards, networked together to a master control teacher workstation. Much of this equipment was purchased through a VH1/Soundtree grant in 2001. The Toledo Public School district was selected during this grant competition, with four schools in the corporation receiving funding to incorporate digital technologies into the music classrooms.

A visit to Richardson's classroom reveals students engaged in musical composition. As students don earphone/microphone headsets and pull out staff paper, he patiently sits at his computer station, listening to individual student performances and providing technical and artistic feedback.

"That's good. Now you need 8 bars. How many do you have now? ... Remember, a half note is getting how many counts? ...That's right. Now play it again from the top."

As students develop their melody lines, they share their musical ideas with others in the class using the networked systems. Richardson can invite all students to listen or play together, or combine smaller groups of students into an ensemble with just a few clicks of the mouse.

Once the students establish their melody lines, they select the instrument sounds (or *voicings*) that they will use for their composition. Before MIDI technology, this required the actual particular instrument—and, of course, a musician who had mastered it. Now a student can play a violin, French horn, or electric guitar sound on the keyboard. These melodies are then paired with an accompaniment style (reggae, blues, ballad, and so on) that enables a student to create a piece with full orchestration—again, with just a touch of a few buttons.

Music teacher Gaylord Richardson can listen to individual students or create ensembles through the networked system. Student compositions can be exported and burned to CD.

With all this technology, are the students really learning anything about music? Richardson can answer with an affirming "Yes!" He has found that students are becoming more fluent in notation reading, are more adventurous and creative in their compositions, and have a deeper understanding of orchestrations because of their work in the MIDI lab. As the student pieces are finished, students export them from the keyboards as .aif files and burn them to a CD. These students, at the end of the school year, will travel to a local recording studio and participate in a live studio recording session, reminiscent of the field trip Richardson experienced as a seventh grader. The inspiration continues.

Savilla Banister is an associate professor of classroom technologies at Bowling Green State University, and the L&L *curriculum specialist for visual and performing arts. Banister is a former K–8 music and art teacher, who partners with local K–12 teachers in integrating multimedia technologies into their curriculum.*

By Savilla Banister

Improving Small Group Learning

Three students in Amanda Moore's first grade class are on the floor working with an overhead calculator. More are gathered around small tables in the back of the room and around the teacher's table near the chalkboard where Moore is using a dry erase board to reinforce yesterday's math lesson. Four pairs are working on computers using virtual manipulatives, and yet three more are reinforcing their math skills by solving mysteries in *Fitz and Martina's Math Adventures*. The timer goes off and students are in motion again only to settle down in different places moments later. What is going on? How is anyone learning anything in this seemingly chaotic environment? Moore is engaging her students in a proven, research-based instructional strategy—small group learning, some of which uses technology.

Infusing Technology

Math, reading, language arts, science, social studies, art, music—technology-based centers can influence understanding and learning. By the term *technology,* I mean computers as well as digital cameras, overhead calculators, geo safaris, tape recorders, iPods, science probes, software, WebQuests, online resources, and more.

Small group learning using technology can be extremely beneficial to middle school and high school learners even though this strategy is often considered an elementary school practice. Older students may work in groups to solve real-life problems in software simulations, data collection surveys, and so on. Yet another group may develop a lesson on symmetry using a video camera and editing software. The possibilities are endless.

A tape recorder and headphones can become a powerful listening center to reinforce reading skills in first graders or be the foundation for literature groups in eighth. A digital camera could be used for an ABC scavenger hunt for kindergarteners or a tool to capture images of the elements of art for senior high students. Science probes and online resources can reinforce difficult science concepts. iPods can be used to record oral histories or provide an outlet for performing a creative writing piece. Whatever the subject or grade level, technology-based small groups can provide reinforcement or enrichment of learning.

Elementary

"Using technology with small groups has several benefits," says Danna Crump. "First, it naturally sparks even reluctant learners' interests. Once I have their interest, it is much easier to teach or reinforce our content. For me, another advantage is that technology evens the playing field. Many children who don't necessarily do well with paper/pencil activities shine when allowed to use the overhead or keyboards. Kinesthetic learners are particularly engaged by technology."

Down the hall, Rayna Lee's fifth grade classroom is engaged in literacy centers. "Small group instruction allows me to give individualized instruction to all of my students," she says. "Using this time to focus on specific areas of improvement not only gives the student immediate knowledge, but the confidence of knowing they *can* achieve." A group of students are gathered around a CD player listening intently to the story read aloud. They are working on identifying the literary elements in the story. The playback is paused occasionally so group members can discuss setting, characters, and so on. These uses of technology allow teachers to address the different learning styles of their students.

Middle

Armed with video and still cameras and video editing software, middle school students work in small groups to create movies to explain science concepts such as symmetry and spectra so that their peers in the local elementary school will understand the scientific concept. Each group works to determine what images or video best presents the topic, writes the script for the video, and then implements the action plan for the video. Finding real-world examples clarifies and develops understanding for themselves and their audience.

By Tammy P. Smith

Multidisciplinary

In his eighth grade science class, Don Locke selects slide presentations developed by his class to demonstrate the concept of sound propagation. They view the presentation in a large group, then groups review the key points presented in preparation of the upcoming unit assessment. Students post questions to the class blog for further peer review prior to the assessment.

High School

Debbie Pendergrass' junior English class exploring *Lord of the Flies* is buzzing with activity as students work in small groups utilizing technology to analyze this novel. One group uses Inspiration to compare and contrast the novel with the movie *Au Revoir, Les Enfants*. Another group is creating a survival WebQuest using the many examples from literature of isolation. A third group creates a podcast simulating a radio newscast of the crash and experiences the survivors endured prior to their rescue. A final group posts to the class blog their questions and analysis of difficult passages so local college literature professors can share their expertise with students to give them a deeper understanding of the novel. These uses of small group instruction coupled with technology allow the juniors to document their understanding of literary elements and concepts in ways that mesh with their strengths in presenting their knowledge.

Pendergrass reviews the artifacts and provides direct feedback. She outlines the strengths and weaknesses of each group's literary analysis and conducts a large group discussion. She addresses the strands presented within the blog and responses from the college professors are discussed at length.

Wrapping It Up

With today's emphasis on meeting the needs of each child as evidenced by legislation such as No Child Left Behind, technology-based small group instruction provides students with a way to engage in higher-order thinking, reinforces prior knowledge while connecting it to new knowledge, promotes cooperation and collaboration, and teaches responsibility. With benefits such as these, the investment in planning, organizing, and restructuring class time allocated for implementing technology-based small group centers is well worth the effort.

Tammy Smith is the curriculum resource teacher and assistant administrator at Hilliard Elementary School in Hilliard, Florida. During her 11-year teaching career she has taught middle school art and technology at the elementary and college levels.

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Participate in our monthly reader poll at http://www.iste.org/LL.

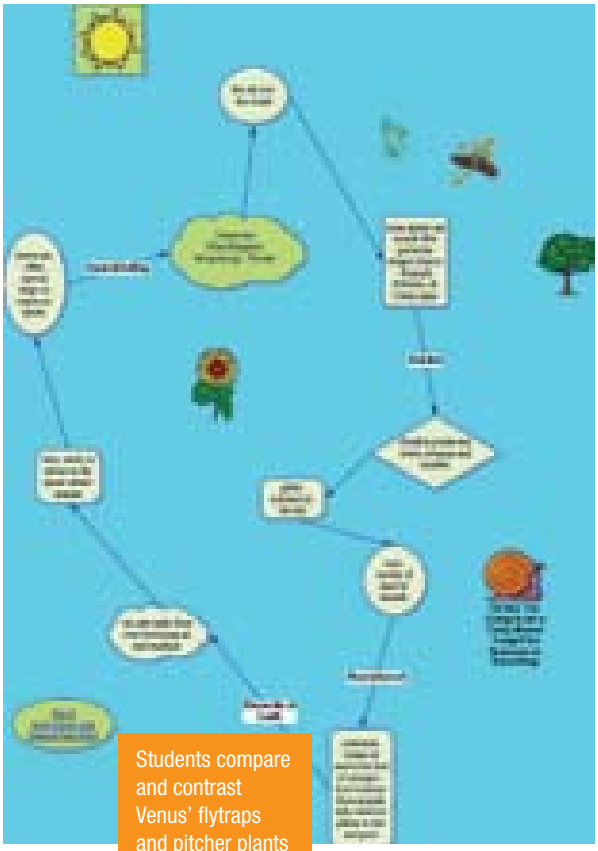
Discover a World of Mysterious Plants

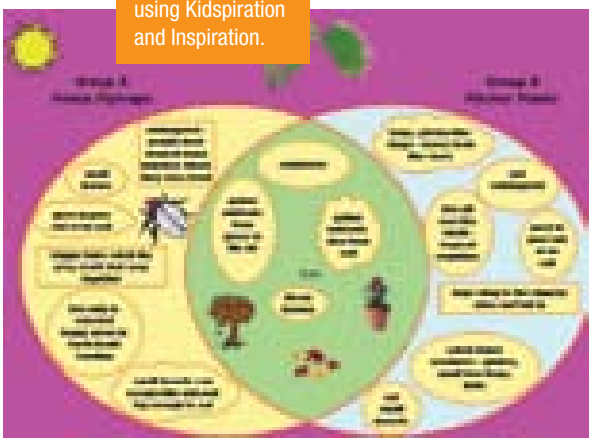
Multidisciplinary

To become an effective educator, I believe teachers should incorporate all learning styles, and teach across the curriculum with every opportunity. Interdisciplinary units allow teachers to use auditory, kinesthetic, tactile, and visual modalities to reach every type of learner. Technology is valuable because it has the capability to incorporate all four modalities.

My third grade unit on carnivore plants begins with students reading "Fly Traps! Plants That Bite Back" from Scott Foresman's *Reading: Imagine That!* The story describes the characteristics and adaptations of various plants. The students enjoy reading a story about a boy's adventure with carnivorous plants and then extending it to learning about other plants of that species. They discover how carnivorous plants contribute to the food chain by eating insects.

Next, small groups use a microscope to look at slides of various plant leaves and insect organisms. Students identify the organisms, paying close attention to details of plant structures. They already know how to identify the three main patterns of leaves from a previous science unit, and are familiar with skeletal structures from a mini-unit on animal skeletons. Students try to identify the insects on the slides, then check the labels to make sure they guessed correctly. At first, when the students viewed the various plants without the aide of powerful magnification lenses, they were not able to see the details of their specimens, and wondered what they were missing beyond what their own eyes would allow them to see. They got excited because microscopes allowed them to see the details of the structures of the plants.





Students compare and contrast Venus' flytraps and pitcher plants using Kidspiration and Inspiration.

Next, students visit a Web page that I created about pitcher plants and Venus' flytrap. They do two scavenger hunts, one where students look for answers to important questions by clicking on various links and another where they label the parts of a plant. We conclude the activities with the students having to name one thing they learned about the unit. Additionally, they use the Web sites and the anthology story to help them compare and contrast the two different plants using either Kidspiration or Inspiration.

My students like to do additional research by looking at other Web sites or checking out a book in the library about plants. They add the additional information to their Kidspiration charts. Other Inspiration/Kidspiration usages include character analysis and prewriting ideas for creative writing in their journals. The students also look at a Biology of Plants Web site that I have researched as a wealth of information to expand their knowledge about the topic.

At the conclusion, students feed insects to two donated Venus' flytraps to examine their function as meat-eating plants, learning life skills on how to properly care for living organisms. At the conclusion of the lesson, they determined how the two plants were alike and different.

By Maria Shaver

Maria Shaver is a third grade teacher and has been teaching for 14 years, 7 of them at St. Martin's Episcopal School in Atlanta, Georgia. She has a BS and an MEd in education.

Revising with a Word Processor

Revision is a powerful lure when using a word processor. I teach my students many of the features they might use while revising when we are in the computer lab. I roam around the room looking over shoulders, consulting with students as they develop their pieces. Occasionally I conduct revising seminars. On those occasions I bring the PC Viewer to class and ask a student if I can use her file. Anyone can be easily confused or overloaded with information when revising with a word processor, so to avoid cognitive dissonance; I display only short pieces during these sessions. Then we go to the computer lab to rehearse the word processing features we experimented with the day before.

I suggest showing students one or two of the following five features:

1. Open a familiar text, something short, asking them to insert returns after each sentence so they stand alone. This helps students see if their sentences are complete. Ask students to experiment with arrangement, cutting and pasting sentences for effect.
2. Boldface the first four words of every sentence. This calls attention to sentence openings, begging the writer to recast repetitive patterns.
3. Demonstrate how to use the Find feature for every occurrence of -ly, -ing, and -ed. This is a good time to remind students they can find and replace overused or commonly misspelled words. I'll ask students to search every occurrence of "to" because when an infinitive is used as an adverb, the base verb, and the action it carries, is weakened.
4. Show how the spell checker works. I make sure students understand that the computer cannot read and that they still have to decide if what the computer flags is correct. This is especially true with homophones such as to/too/two and there/their/they're. (And don't get me started with computerized grammar checkers.)
5. Work with multiple windows/files and expand or compress a sentence, experimenting with detail or syntax. Or spend some time cutting and pasting to reorganize an entire an essay.

—Rick Monroe began teaching English in 1978. Two years later he was using word processing with his students, and since then has been an advocate for incorporating technology in to the curriculum to help students articulate their thoughts.

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Language Arts