Burning for Learning: Motivating Students by Incorporating Multimedia into the Curriculum

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Of Texas' 1,058 independent school districts, many are small rural districts like ours, Karnes City ISD in South Texas. Like so many Texas schools, perennially short on funds yet challenged to keep dropout rates low and TAAS scores high, our district has searched for effective ways to use technology to meet these needs. One of the most interesting and successful of these projects has involved integrating multimedia into the curriculum at the secondary level.

Over the past five years, our students (and teachers) have written original HyperCard™ and HyperStudio™ stacks (programs) in a variety of subject areas. Combining such elements as music, graphics, text, animation, audience interaction, voice, Quicktime movies, art and links to laserdisc players and CD-ROM drives, these student presentations have brought an entirely new dimension to the traditional research paper or science report, and have motivated students to become active learners rather than simply passive recipients of knowledge-level instruction.

Several have won awards for their work, and have taken their presentations "on the road" to share their enthusiasm with educators at state and local conferences. Several teachers have written or helped to design their own instructional software for classroom use, and have written or revised curriculum documents to include multimedia projects.

If this could happen in an isolated small town with no high-tech industry or local college to serve as resources, then it could be made to happen anywhere. The resources we used are available to everyone, and the equipment we started with was minimal. The process we went through can be summed up in three words: discovery, integration, and involvement.

DISCOVERY: LIGHTING THE FIRST SPARK

Texas is blessed with some of the best professional organizations in the nation, and two of them, the Texas Computer Education Association (TCEA) and the Texas Council of Teachers of English (TCTE), deserve the credit for helping us get started. It was after hearing Roberta Young describe her writing lab at a TCTE conference that I returned to school hoping our students could soon have a similar resource. After obtaining approval from administrators to approach the school board on this issue, I did some research, took a survey of teacher attitudes, and wrote a detailed

proposal, presenting it to the board in the spring of 1989. They were very receptive, and on the first day of school next fall I was welcoming students into their new lab of Macintosh Plus computers. My assignment had changed from English teacher to writing lab facilitator, thanks to a progressive school board.

The lab was soon very busy as students completed their research papers, essays, poetry, and other writing assignments. Due to the intuitive Macintosh operating system, very little time had to be spent teaching students how to use the computer, so we could focus on editing, revising, and polishing their writing. The next spring, writing scores were high and the board approved a second proposal to double the number of computers in the lab and purchase an LCD panel.

The lab was proving very useful, and we were convinced that using word processing was really helping our students improve the quality and quantity of their writing, as well as their attitude towards writing. However, there was so much more we could do with a Mac, as the TCEA 1990 convention revealed. After attending a fascinating half-day workshop conducted by Marilyn Fricks of Apple Computer, I learned what HyperCard really was and suddenly realized its potential in the classroom. Here was a software program we already had, since Apple bundled it with the Mac then, and we had put it on the shelf thinking it was an address book program! Instead, it was a powerful and exciting multimedia authoring tool that was nevertheless simple enough for "the rest of us", as the Macintosh ads declared. As it turned out, they were right.

INTEGRATION: FANNING THE FLAMES

Returning to campus after the conference, I was eager to introduce students to HyperCard to see if it had the potential I thought it had. Fortunately, two sophomore lab aides were eager to give it a test run. They had a major upcoming assignment that could be adapted to a HyperCard project, and asked their classroom teacher if he would allow them to make the substitution. Not entirely sure what a stack actually was, the teacher nevertheless was innovative — and certainly trusting — enough to give permission, and we began our first stacks.

The students had only Macintosh Plus computers and a Thunderscan (a now-obsolete scanner that attached to the Imagewriter printer) to work with. The computers had no hard drives or color monitors, but we did have a MacRecorder microphone. Learning HyperCard as they worked on their projects, the students wrote two stacks, "Jenny's Flowers" and "Rachel's Bugs" as substitute assignments for the traditional biology collections. The students and their science teacher were very pleased with the results, and we started searching for other opportunities to use this new tool.

It didn't take long for the word to spread, and soon the English teachers were assigning stacks. We started with the gifted and talented students, since stackwriting seemed to satisfy so many of TEA's guidelines for G/T programs: It was an innovative use of technology; it encouraged the use of higher-order thinking skills; it involved a complex and sophisticated student product; and it was an alternative type of assignment rather than "more of the same".

Within the framework of the existing curriculum, teachers and students would decide on a topic and an approach, and would do their research and planning in the classroom and library. Then, the teacher would reserve computer time for the students and would accompany them to the lab, where we would "team teach" the group and help them write their stacks. Student enthusiasm was high, encouraging more teachers to find places in their curriculum where stackwriting would be an appropriate assignment. Some examples of those first stacks include an introduction to the characters in The Scarlet Letter, an explanation of Middle English words in Chaucer's Canterbury Tales, and a lesson on stage terms used in Shakespeare's plays. The Spanish II students also produced a stack that incorporated their own voices demonstrating correct pronunciation.

By the end of that spring semester, we knew that it was practical and workable to include stackwriting in the curriculum. Students seemed to learn the basics of stackwriting very quickly, and with the help of several books and a great deal of trial-and-error, I was able to teach myself enough to facilitate their projects and write a few of my own. Since the other teachers did not have to spend time learning HyperCard, they could devote their energies to assisting the students with the content of the presentation, while I provided technical assistance and helped students with their writing skills.

Having had success with the English and Spanish classes, we expanded into other subject areas the next year. Science classes were an ideal place for HyperCard; one student won first place at the science fair with her stack, which she demonstrated for the parents on one of the new Mac Classics with an LCD panel attached. We discovered how useful a template could be, as we brought nearly 40 freshmen together on a "Constellations" stack. Instead of their regular written report, each student used a three-card teacher-written template and written instructions to write stacks showing a picture of their constellation, a drawing of the stars, and a written composition. The individual stacks were then linked to a main menu.

Business students designed ad campaigns in HyperCard, migrant program students wrote autobiographies, science students explained lab safety procedures, debaters clarified terminology, junior high students

wrote about Texas wildlife; demand for lab time was high, which was the only limitation. Then as we began purchasing classroom Macs with technology funds, students started writing group projects outside the lab and presenting them in the classroom, bringing in extra equipment such as laserdisc players and speakers as necessary.

Teachers were also beginning to use HyperCard as part of their own lessons and presentations. A teacher would express a need for a certain type of tutorial, I would write a stack, and we would schedule lab time for the classes. This way, we were able to write our own software to fit the local curriculum, and modify it as necessary. Many of the stacks involved writing skills, and may have been partially responsible for high TAAS Exit Level writing scores over the past 5 years. (These stacks also won first place in TCEA's Teacher Produced Materials contest, enabling us to buy a Xapshot camera.) Other uses for HyperCard were discovered; for example, the principal asked for a stack to calculate and print his TAAS evaluations, while the cheerleader sponsor used a stack to tabulate election results.

INVOLVEMENT: ADDING FUEL TO THE FIRE

Each year, we added more equipment to our lab: a color OneScanner, a laserdisc player, Mac LC's, a Centris, CD-ROM drives, speakers, a Video Spigot card, Xapshot camera, and additional software, such as HyperStudio™. This year, we have a new Quadra 660AV and an Apple QuickTake camera. The writing lab is starting its sixth year, and support for the program from administrators and the school board remains strong, even though the high school has had five different principals since the lab was proposed in 1989. The key to keeping this support has been the involvement of students, teachers and parents in these projects. We have made a deliberate effort to bring the students' work to public attention and to assist teachers in their efforts to enhance the curriculum.

One way we have promoted this program is by sharing student work at conferences. When our ESC, Region III in Victoria, sponsored an "Excellence" conference, we submitted a proposal to present and then took two teachers and two students to demonstrate their HyperCard work. This led to an invitation from Texas Education Agency (TEA) to present at their "Institute on Critical Thinking" in Austin. Another student won first place in TCEA's HyperMedia contest, and presented at their state conference; the next year, he won first in his category again and spoke in Victoria at Region III's Technology Fair, as did our Spanish teacher, who has written an extensive collection of stacks on vocabulary and pronunciation. Our science students were asked to present twice at Texas A&M-Kingsville, and two science teachers have demonstrated multimedia at Corpus Christi ISD's "Science on Saturday" conference. Owing so much to professional organizations, I have tried to give something back by presenting at TCTE, TCEA, National Educational Computing Conference (NECC), Texas

Association School Board (TASB), and TAET conferences. Winning third place in Texas Center for Educational Technology's (TCET) "Excellence in Technology" contest in 1992 also helped the credibility of our program.

Parents and board members have been kept up-to-date on our multimedia activities as much as possible. Each time a student or teacher is invited to present or wins an award, we write an article in the local paper, including the student's picture if possible. We show student work on Open House night and at the science fair, and this year, with the Mac AV, we plan to send home videotapes of student-written stacks.

Student enthusiasm is also a major source of support. Instead of "Do we have to know this for the test?" we're more likely to hear "May I borrow your HyperCard books tonight?" or "How late will you keep the lab open after school today?" Students often do more research than they were asked to do, branching out to make connections between, for example, a literary period and the music of that time, in order to enhance their stacks. Having discovered that they have so much control of the computer and peripherals, they feel empowered to create a unique product that brings their subject to life, for them and for their classmates.

In conclusion, if we had to condense what we have learned here over the past five years about integrating multimedia into the curriculum, the most important elements would be:

- Inspiring the Faculty: Encourage teachers and support personnel to join professional organizations and to attend state and/or national conventions in their field. TCEA, for example, meets in Austin each February and offers sessions and workshops relating to every grade level, special population, and subject area.

- Team Teaching: Provide the classroom teachers with a technology specialist, or a teacher with a special interest in the area, to get the program started and assist them with the software and equipment. Give this person a very flexible schedule and the autonomy to make decisions. If you live near a university, see if student volunteers can provide additional help.

- Training: Provide ongoing training for all personnel, but remember that not all teachers need to learn the software in depth, especially if you use team teaching.

- Building Support: Start the first projects with smaller groups, such as the Gifted and Talented students, and then extend the program to all students as the teachers' comfort levels increase. Start with the most receptive teachers, and ask them to find the appropriate

places in their curriculum for these projects. Provide them with time to revise curriculum documents and prepare teaching materials.

- Publicizing: Find ways to bring student work to public attention. Enter stacks in TCEA's Multimedia Contest, set up a computer in a local bank to showcase student work, take students to technology fairs or host your own, have an open house . . . there are many possibilities.

- Providing Equipment: You can start these projects with just a Macintosh computer, but you'll soon want to add a Quicktake camera, color scanner, CD-ROM drive, laserdisc player, and perhaps an LCD panel or LTV for presentations. Newer Macs come with microphones, and older ones can use the MacRecorder by Farallon. In order to add Quicktime movies, an AV Mac is ideal, but you can add a digitizing board such as the Video Spigot to any of the newer Macs to do the same thing.

- Providing Time: Teachers need time to revise their curriculum and write new units of study incorporating technology. (For example, our district provided six G/T teachers with a week in the summer for curriculum writing, and obtained a waiver to provide all teachers with additional inservice time to update their curriculum guides.)

- Finding Software: HyperCard came with earlier Macs, so you may already have it on campus! Preview HyperStudio by Wagner Publishing, an excellent program similar to HyperCard but much simpler; there is a version for the Apple IIGS also. If you have DOS or Windows machines, try programs such as Toolbook or LinkWay. The preview center at your ESC is a good place to start.

Bringing multimedia into the curriculum has been a rewarding and exciting project. Students have been challenged to stretch their imaginations as well as to examine their topics closely as they create their presentations. Teachers have been empowered as well, and have learned that computers can be so much more than word processors or drill machines. I feel certain that we will continue these projects as we continue to move away from the old lecture hall method of teaching and concentrate more on improving student performance and developing critical thinking skills. And even though each school will take its own path when initiating such a program, perhaps some of the methods and approaches that worked for us can be adapted to other situations. It has been well worth the time and effort. Because of this program, instead of experiencing teacher or student burnout, we start our week "fired up and ready", as our cheerleaders say, to learn something new.