

Stoking Creative Fires

Young Authors Use Software for Writing and Illustrating

By Marilyn H. Catchings and Kim MacGregor

Different types of creative tools may bring different results from different children, even when the process is essentially the same. In this article, the authors show the various ways in which first- and fourth-grade students used electronic paint and word-processing programs to produce creative-writing and creative-drawing projects.



The past few years have seen a dramatic increase in the number and abilities of electronic paint programs for children. Many of them provide word-processing and even publishing capabilities along with their paint and draw features. Children exhibit delight and enthusiasm when using these programs, but teachers wonder whether they hinder or enhance creativity and literacy. In fact, the ability of computer technology to support a broad array of visual forms—illustrations, graphs, animations,

and video—makes it a valuable tool for developing visual literacy.

In early childhood, visual thought and communication are closely related. As developmental psychologists such as L. S. Vygotsky (1974) have shown, images play an important part in children's attempts to understand and think about the world. The early written communication attempts of young children make extensive use of both verbal and visual symbols (Blackstock & Miller, 1992; Schickendanz, 1986). Computer programs can be rich promoters of visual thinking skills and can provide a visual springboard for writing (Rezabek & Ragan, 1988). An exploration of the use of computer graphic programs by young children in their "symbol weaving attempts" supports this view (Blackstock & Miller, 1992).

Beginning Our Project

Our project was designed to study first- and fourth-grade children as they used a paint program that provided them with an easel on which they painted pictures as well as a writing tablet on which they entered and edited text. We chose 100 first- and fourth-grade children to study

because we were interested in learning what effect the features of a paint program would have on young authors and illustrators at different developmental levels. The program used was Easy Book because it provides children with assorted paint and draw tools and also allows students to write below the picture or on a following page. Each story appears on the screen as pages in a book; altogether, they can be printed in the correct sequence and bound.

We discussed the basic principles of graphic design and expression so that we could establish a baseline of information for all of the children. We engaged students in a lively conversation about how illustrations and color can be used to create mood. We showed them examples from several Caldecott Award-winning books: *The Polar Express*, written and illustrated by Chris Van Allsburg; *Lon Po Po* (A "Red Riding Hood Story" from China), translated and illustrated by Ed Young; and *Owl Moon*, written by Jane Yolen and illustrated by John Schoenherr. All of them were available to students in their library.

Half the students in each class were randomly assigned to a "Crayon/Marker" (Crayon) group and the other half to an

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“Electronic Paint” (Paint) group. The Crayon groups could use crayons, markers, or both. We worked with each small group of 10 to 14 students for 30 minutes once a week for 12 weeks in a computer lab. Students in the Crayon group drew their pictures at tables in the middle of the room before moving to the computers to write their stories. All groups wrote at the computer using the word-processing portion of the program, thus ensuring that no differences in the quality or length of the stories would occur solely because a word processor was used. Paint groups worked at the computers to draw their pictures and write their stories. To provide a record of the creation process, we videotaped several students in each session.

Collaboration and Creativity

Differences in both the creative process and product were documented. The nature of the interactions among the students in the two groups was noticeably different. In the Paint groups, peer collaboration was extensive, vocal, and boisterous. Students helped not only their next-door neighbors but also others across the lab. Many questions, answers, comments, and exclamations bounced back and forth across the room. Students in the Crayon groups also talked, commenting on what they were drawing or asking for help finding particular colors, but their conversations were more subdued and less frequent. Most of the interactions between these students focused on finding a missing color or replacing a broken crayon or dry marker. While they were drawing, they often talked about things other than the task at hand.

A higher degree of collaboration among children in the Paint groups was also evident during the writing stage of

the authoring process. Students sitting next to each other would lean over to ask the spelling of words or what something should be called. Some even used each other's names in their stories. We did not record this much verbal exchange among the Crayon group's writers. The latter would ask the researchers about the spelling of a word, but they did not seem to talk among themselves about the stories they were writing. Because all of the groups used Easy Book's word-processing function, we could only surmise that the collaboration begun during the drawing portion continued into the writing session.

Visual-Verbal Literacy and Creativity

Observations of the Paint students and analysis of the videos revealed interesting facets in the way the paint program was used. Some students started over several times. Some changed elements of their pictures, background color, and minor objects, all of which served as a setting for the main characters; the students were determined to get the surroundings just right. One student remarked that he loved drawing with the paint program because “You can change mistakes and it doesn't show.”

Unusual colors, patterns, and effects were part of the experimentation that most of the children did. Often a child was pleased with some whimsical color and adapted the story to fit the resulting strange visual effects. One first grader drew a bedroom with dark red walls. When asked if it was the color of her bedroom, she replied that it was not but that she liked the color and wanted to see how it would look. When we checked back with her later, the walls were still dark red and in her story a fairy godmother had changed her blue walls to that luscious red.

The Paint students' freehand drawing with the mouse was often not as precise as they would have liked; this was particularly true for the first graders. Frequently, less adept students combined stamps with freehand drawings to illustrate their stories. For example, one student did a nice freehand drawing of a road winding through a meadow of green grass with flowers along the road. Walking down the road are a boy and a dog (both stamps); a helicopter (another stamp) is getting ready to land in the meadow by the road. In this story, the helicopter stops to ask the little boy for directions.

In another example, a fourth grader

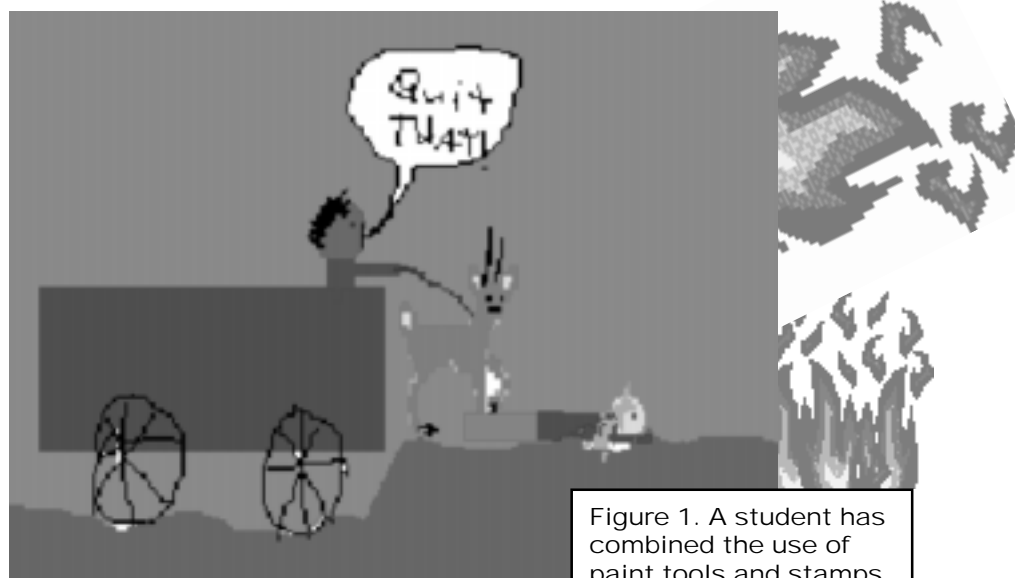


Figure 1. A student has combined the use of paint tools and stamps.

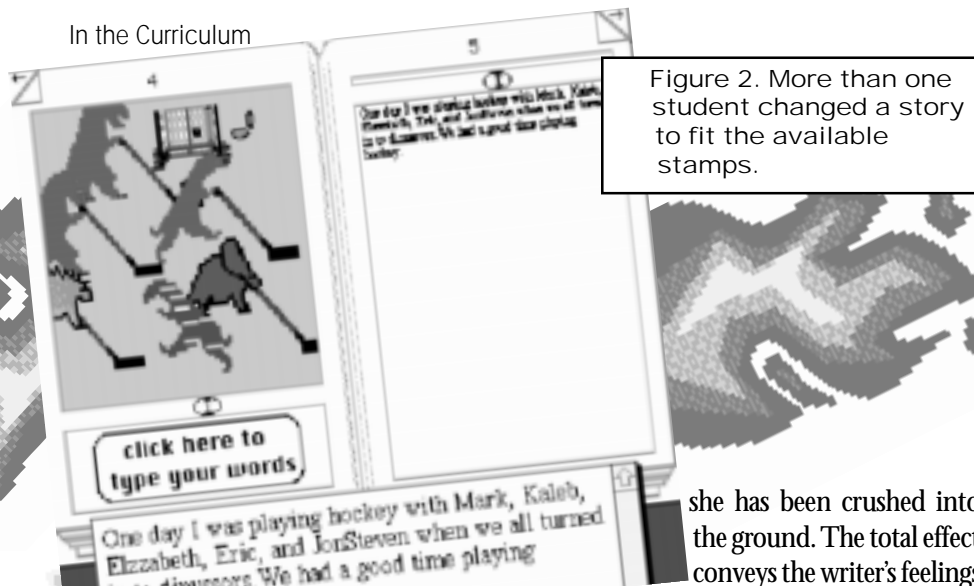


Figure 2. More than one student changed a story to fit the available stamps.

vertical plane. Some children seemed disoriented because they could not see what they were drawing under the mouse, thus throwing off their eye-hand coordination. This seemingly affects some children more than others, but it did not deter them from drawing. Most of them soon became adept at manipulating the mouse.

One feature that may also inhibit task completion is the ease with which a student can erase a drawing with one simple mouse click. A few children were observed repeatedly “wiping out” their pictures with abandon and starting over. Erasing and moving tools are almost too attractive and fun! This may contribute to some impulsiveness and perhaps inhibit reflection and purposeful planning.

Despite the few limitations we observed, electronic paint programs seem to have significant advantages over paper-based drawing. We discovered that the Paint pictures were more creative and the stories accompanying them longer and more interesting. The pictures were evaluated using criteria developed for the Torrance Tests of Creative Thinking (Torrance, 1974). The criteria included the number of colors used, elaboration, and creative strength; the latter is recognized by emotional expressiveness, movement, humor, unusual visualization, richness of imagery, and fantasy.

In addition, the picture’s correlation to the story was assessed by identifying the number of picture elements that were included in the story and whether use of both words and graphic images created a richer story than either one alone. The Paint pictures were analyzed and found to have more elaborations and a greater number of colors than the Crayon pictures. More picture elements were mentioned in the Paint stories than in the Crayon stories, and the Paint stories were found to be longer. This could have been because the children were so conscious of adding elaborations to the paint pictures that they tried hard to include them in the stories. This helped with background description and action details.

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she has been crushed into the ground. The total effect conveys the writer’s feelings

to the reader.

Observations of the children indicated that the younger and less creative children were likely to search for stamps to express their ideas. If they could not find one that represented their original idea, then they might select an existing stamp and change their story to fit it (Figure 2). The more artistic fourth graders did not use the stamps at all; they used all of the paint box tools to render more creative and vividly colored drawings (Figure 3). One student remarked about the paint program, “I love these colors. It’s easier to pick up colors. Crayons get broken and lost.”

In addition, first graders needed more time to complete their stories than did the older students. In this case, they were able to represent ideas through their illustrations, but they had more difficulty writing the story in text form.

Observations

So what were the advantages and disadvantages of the electronic paint programs? Their limitations, in fact, seem few in number. One drawback may be that children have some trouble using a mouse to draw after they have learned to draw with a pencil. This was confirmed by one fourth grader who is particularly adept: “[I]t’s easier to draw with a pencil.” Another hurdle for children is the discrepancy between the drawing and the visual planes; a mouse pad on which the child draws requires her to create on a horizontal surface an image that will appear on a

had drawn himself and several of his pets. Using an eyeglass stamp, he put glasses on himself (which he wears) and his

pets. He did not mention

this whimsical treatment in his story, which was about a delightful adventure they shared.

Some students embellished the stamps to fit their needs. In one picture, for example, a fourth-grade student added horns to a deer stamp to make it a goat (Figure 1). Her delightful picture was a curious mix of stamps, freehand drawing, the rectangle tool, and the paint bucket tool. In the story a man driving a goat cart ran into a person (the story writer), who ended up under the goat. The blue sky and green grass of the background were hand-drawn but filled in with the paint bucket. The wagon was created with the rectangle tool; the wheels were drawn by hand. The driver’s body was one rectangle disappearing into the cart, the arms were formed by two rectangles, and the head was produced freehand. The writer’s character, lying under the hooves of the goat, was made of three rectangles, with a hand-drawn face and outstretched hand. The flatness of the body, the supplication of the outstretched hand, and the nose pointing skyward are quite expressive. The character looks as if



In one story, for example, the main character was walking through woods; instead of using this simple statement, the author included descriptions of beautiful red, yellow, and brown leaves on the trees, the flowers growing on the path, and the birds flying overhead, all of which set the mood for the happy story that followed. In general, among all groups, the more intricate the picture, the more detailed and complete the story.

Using Paint Programs in Your Own Classroom

We believe teachers should try these electronic paint programs because of their capabilities to produce books with students of all ages. Spend a short time demonstrating how to use the main tools and then provide a couple of sessions in which you encourage your students to experiment with many of the program's features. Letting each student tell the group about her or his favorite effect and how to achieve it provides a great way for them to learn more about the program and it encourages the collaborative tendencies that are paramount to the successful use of this medium. Print student masterpieces (in color, if possible) and display them on a bulletin board so everyone can admire the special effects and visual representations.

Presenting the students' stories can be done in many different ways. All children enjoy having their stories made into books that can be taken home and shared with the family. Their stories also can be compiled into a classroom anthology and placed in the reading center. A progressive story can be left on the computer, and students can add material as desired; this can make an interesting and fun collaborative project for the entire class. Students can add pictures on each page of the story as it continues, and the end product can be printed as a finished book. Easy Book, for example, makes this especially easy. If students want to present their stories to the class or to

visitors, then they can use the simple slide-making capabilities of a paint program such as Kid Pix II to accompany their presentation. In addition, some of the paint programs have sound-recording capabilities; these will allow a child to speak the story directly into the microphone. The narration is subsequently attached to the illustration. (See "Choosing a Paint Program" for more information about the different features in common pieces of software.)

Publishing activities engage students because they are interesting, challenging, and creative. By adding technology to these activities, you can make the projects even more exciting by providing them with professional end products. ■

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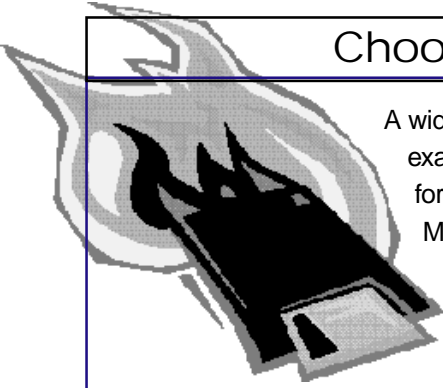
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Figure 3. Highly artistic fourth graders produced the most creative drawings using only the paint box tools.

Choosing a Paint Program



A wide variety of electronic paint programs are available for classroom use, but we have examined 13 here. Several of them have broader multimedia tools that allow students, for example, to animate parts of the picture and use recorded sound (see Table 1).

Most of them contain large clip art libraries, backgrounds, stamps, or stickers; a few even incorporate QuickTime movies. Some have broader text-manipulation features (see Table 2). All of them make writing a pleasure.

TABLE 1

	ANIMATION	SOUND	MOVIE CLIPS	CREATES SLIDESHOWS	ELECTRONIC PLAYBACK
Kid Works Deluxe	x	x			x
Kid Pix Studio	x	x	x	x	
Easybook; Easybook Deluxe					x
The Amazing Writing Machine					
Kid's Media Magic		x	x		x
Storybook Maker Deluxe		x			
The Ultimate Writing & Creativity Center	x	x		x	
Make-A-Book		x			
Creative Writer 2		x			
Magic Media Slate	x	x	x		
Storybook Weaver Deluxe		x			
Super Young Authors		x			x
ClarisWorks for Kids		x	x	x	

TABLE 2

	TEXT-TO-SPEECH	SPELL CHECKER	REBUS TOOL	GUIDES PROCESS WRITING	PRINTS IN BOOK FORMAT
Kid Works Deluxe			x		
Kid Pix Studio					
Easybook; Easybook Deluxe	x	x			x
The Amazing Writing Machine			x	x	
Kid's Media Magic	x		x		
Storybook Maker Deluxe					
The Ultimate Writing & Creativity Center	x	x		x	x
Make-A-Book					x
Creative Writer 2					
Magic Media Slate					
Storybook Weaver Deluxe	x	x		x	
Super Young Authors					x
ClarisWorks for Kids	x	x			

Try one or more of these programs with your students and watch the enthusiasm, collaboration, and creativity flow!