



Integrating the Arts with Technology: Inspiring Creativity

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Adding creativity into students' daily schoolwork can sometimes seem like a daunting task. However, the synergy between the arts and academic learning is one that can be harnessed by students with disabilities, their teachers, and their schools as a way to integrate the arts into curricula to enhance student motivation, engagement, and learning. It is also an effective alternative mean of increasing academic achievement.

The arts offer important benefits for children with disabilities, including access to the general curriculum required by IDEA 2004, as alternative assessments for children with cognitive disabilities, and as alternative learning methods for English language learners (Sclafani, 2002; Huting, et al., 2005).

Through the arts, students gain self-confidence and self-esteem by expressing and exploring their identities, as well as communicating issues and personal reflections through alternative mediums of expression. Research has found that students at-risk for dropping out of school who participate in arts programs gain a more positive attitude about themselves and their future, increase academic achievement, and decrease delinquency. For students with disabilities in particular, the opportunity to be self-expressive and successful in an artistic medium can often diffuse or transcend the sense of isolation and frustration they may feel when working with their disability in daily life.

Today's technologies offer multiple ways to accomplish this in the classroom alongside already established curricula. This Information Brief will summarize some of the research pointing to the benefits of the arts for students with disabilities and offer a number of technology resources teachers, families and students can explore.

Benefits of the arts for students with disabilities

Schools that integrate the arts into their curriculum have discovered that the arts capture the attention of students and teachers alike. Research by The Lab School, a school that specializes serving children with learning disabilities, has found that the arts continually engage students with disabilities in observation, rehearsing, weighing, and judging — all of which are essential meta-cognitive tools for learning with which students with learning, behavior and attention disabilities often struggle. The arts also help students grasp concepts and make connections between academic subjects, such as math, English, and science. Research has made connections between the arts and academic achievement, particularly when it comes to three areas: listening to music and spatial-temporal reasoning; learning to play music and spatial reasoning; and classroom drama and verbal skills (Mason, Steedly, & Thormann, 2005). Teachers have noted that the arts provide a platform for individualized instruction, a key element in meeting the needs of diverse learners, as well as a way for teachers to understand the strengths and weaknesses of students to incorporate that knowledge into their teaching and classroom planning.

To see some examples of how art can help improve student's academic skills, watch these short videos:

Reading Rocks: The Lab School

Students put together a TV production about what it is like to have dyslexia at the Lab School

Reading Rocks: Ben

Ben learns to read. He also puts together a board game and writes a book about it. The arts are integral to his motivation and learning.

In both general education and special education populations, the arts have been found to:

- Reach students in ways that they are not otherwise being reached;
- Connect students to themselves and each other;
- Transform the environment for learning;
- Provide learning opportunities for the adults in the lives of young people;
- Provide new challenges for those students already considered successful;
- Connect learning experiences to the world of real work;
- Enable young people to have direct involvement with the arts and artists (through "artists-in-residence" programs); and
- Support extended engagement in the artistic process (Fiske, 1999).

These benefits, however, are only reaped when teachers are provided the professional development and support to learn how to integrate and fully involve the arts in the classroom (Fiske, 1999).

There are additional considerations for the role the arts play in influencing students' academic and social development. In a compendium of 64 educational studies, *Critical Links* (Deasy, 2002), several studies make the connection between the impact the arts have on academics for students with disabilities:

- **Drama** develops higher order language and literacy skills as students act out historical or literary figures, they immerse themselves in a theme and can explore and learn about it in a personal way.
- **Music** enhances language learning by teaching students about rhythm, pitch, and sound. Rhythm helps students learn rhymes and develop phonological awareness — components of reading. Repetitive songs help teach academic facts to be memorized (like the multiplication tables) and help make the learning experience easier and more enjoyable.
- **Fine Art** experiences develop literacy, numeracy, and writing skills. Drawing and painting reinforce motor skills and can also be a way of learning shapes, contrasts, boundaries, spatial relationships, size and other math concepts. See the **Learning Disabilities and the Arts** article.

Implementing arts-oriented classroom technology is no different than working in any other kind of technology into the classroom. It is extremely important to involve knowledgeable teachers who can adapt their teaching to a learner-centered, creative process with other teachers, students, and families, and provide a classroom environment that has access to technology. In using technology for creative pursuits, teachers can introduce and reinforce concepts that have been previously introduced by more traditional teaching methods, and in doing so adapt the concepts to the various needs of all their students.

Many students with learning disabilities struggle to communicate their thoughts and feelings. They may have trouble finding the words or using language effectively. The visual arts, such as painting, drawing, music, and computer graphics, can give them a non-verbal way to express themselves and interact with other people. Computer graphics programs in particular can provide alternative avenues for creative expression, and when coupled with overall classroom software application, use and retention of knowledge and skills (through repetitive movement and software training, for example), can result in students retaining the ability and knowledge to use alternative input devices — often up to two full years after initial use, according to one study (Hutinger, 1998).

Combining the arts with technology can create new and exciting ways to keep students motivated and engaged in the learning process and the world around them. Teachers can help reduce learning barriers by working arts curriculum and technology into students' individualized education programs (IEPs) and the general curriculum.

As with all technology, it is of utmost importance that students with disabilities get the support they need to learn to use the tools and features of the technology. Many sites have tutorials that a teacher or parent can use to structure learning how to use the program. Other advice can be found on blogs and wiki's found by searching on the name of the program plus the word "help."

One of the benefits of digital or digitally-recorded art of all types is its ability to be shared far and wide. The literacy and language of critique that are involved in sharing with peers is valuable for students. A **new report** from the MacArthur Foundation on students' learning online demonstrates that the time youth invest in online collaborations of all types is time spent learning to communicate in the digital 21st century — that is, time well spent. (See **this article** on how new media can support students' writing and communication skills.)

Tools for integrating the arts with technology

So how do you integrate technology into the arts to positively influence student learning? There are many software programs available to families and schools to promote this kind of creative growth and which can be used to meet individual needs. Existing computer operating system may have programs that you have not tried yet such as Paint (Windows). Look for what you can do in your system with digital photographs to provide students a multimedia start with their art, check out MovieMaker in Windows and iMovie in MacOS iLife suite. Explore the popular **GarageBand** in Mac OS's iLife suite which includes a tutorial for learning guitar and piano as well as a recording and mixing studio.

There are also a host of **free** programs to explore. Find more by searching for your topic plus the words "free programs." Here are some to get you started:

Music

JamStudio (online)

With JamStudio, users can mix and create digital audio tracks to create their own music; the user interface is geared toward the rock and youth set.

Rock Our World

This online international project connects students from all over the globe to compose music, make movies and interact with each other in live video conferences.

Dallas Symphony Orchestra Kid's Site

This site, geared for elementary students, has a section for music teachers and for students. There are games and activities in music theory, history, and virtual instruments.

Fine Arts

ArtRage (Windows and Macintosh)

This is a fun, easy-to-learn program for experimenting with digital art with an easy-to-use interface.

ArtWeaver (Windows)

ArtWeaver features a number of natural media brushes and tools such as chalk, pencils, charcoal, oil paint, felt markers, crayons, airbrushes, acrylic, sponges, and pastels.

Deleter CG illust (Windows)

If you have a student who is into the Anime and Manga illustration style of Japanese comics, check out this program. There is a library of users' Event files to watch how the steps of an illustration become animation.

Destination Modern Art (online)

From the Museum of Modern Art, this interactive online website speaks to students about art — literally reading out the instructions, a help for students who do not read well. Students of all abilities can explore and use this site to learn about different interpretive ideas, practice vocabulary, learn how art is created, and much more.

SketchUp7 (online)

A free download from Google, this 3D design program allows users to create imaginary cities, buildings, or recreate existing ones. First created for architects, it is a powerful educational tool students can use as well.

The Art Zone (online)

Sponsored by the National Gallery of Art, this interactive site currently hosts 16 art programs that educate and engage students of all ages. Check out the new Photo Op program that teaches users about digital photography and photo manipulation tools.

TuxPaint (Windows, Macintosh, Linux)

This open source drawing program is a free download that works well on nearly all platforms, including slower or thinner (with less memory) machines.

Sites Devoted to Individuals with Disabilities in the Arts

Art Partners focuses on addressing learning needs through the arts for children with disabilities in urban schools in New York.

VSA Arts provides resources, materials, and events for people with disabilities who want to participate in the arts.

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