VariQuest™
Visual Learning Tools

White Paper

Creating a Visual Learning Environment Using 21st Century Die-Cutters

How a New Kind of Education Technology Aids With Teacher Instruction

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Content

Introduction

Die-cutting machines have been used by schools for decades. They are typically used by teachers to cut out letters, numbers, shapes and designs for incorporating into lesson plans and complementing their curriculum. Cutouts are important for classroom instruction because they engage students by serving as effective visual aids and manipulatives for differentiated learning styles. Different materials can be cut depending on the die-cut machine being used. However, the most common material cut is the heavy weight construction paper. These die-cut machines are used most often for creating educational manipulatives, bulletin board displays and classroom decorations.

The majority of schools are used to using traditional, steel-rule die-cutting instruments that require manual control of the apparatus while cutting, such as the turning of a wheel. However, with the latest advancements in education technology, many schools are now updating their equipment and transitioning to an electronic die-cutting system that stores the shapes digitally and then cuts them automatically with the click of a mouse or touch of a screen. This paper examines the benefits of incorporating cutouts into curriculum and transitioning from manual die-cutting instruments to electronic systems.

Academic Value of Cutouts

Educators face great challenges pertaining to the engagement, comprehension and retention by their students. Using cutouts, teachers can create visual aids for their classrooms, such as bulletin board displays and manipulatives, which nurture academic growth and help students advance through curriculum. Specifically, bulletin board displays have the power to add excitement to learning while serving as constant static visuals helping to increase student retention. They are powerful educational tools, not simply decoration. They essentially become visual representations of a lesson plan. From language arts manipulatives to mathematical signs, formulas and geometric shapes, cutouts can be created to support virtually any subject area including math, geography, social sciences and arts.

Cutouts aid teaching concepts in a number of ways. Here are just a few examples:

- **Word Sort (Latin Root) Cutouts** → builds vocabulary and supports comprehension
- **Alphabet Manipulatives** → promotes letter recognition and supports phonemic awareness
- **Mathematics Manipulatives** → teaches mathematic concepts through visual representation of abstract concepts
- **Fraction Manipulatives** → teaches graphical representation of fractions
- **Representational Realia Cutouts for Special Education Students** → presents content in a way that is less dependent on language while supporting differentiated instruction

Using cutouts and manipulatives in interactive activities that support curriculum is crucial to leading students to higher levels of comprehension and retention. Research shows that students become more involved with one another and cooperate more naturally when they are working on hands-on, craft-like projects. According to a study completed by the Craft & Hobby Association, "*The Academic Value of Hands-on Craft Projects in Elementary Schools"*

(www.teachersplace.org), teachers observed greater cooperative behavior and perseverance by students during learning activities involving hands-on projects than they observed during learning activities without hands-on projects. Hands-on projects especially help students with learning disabilities, language challenges and a lack of motivation by giving them a non-verbal method of absorbing information and demonstrating their understanding of a concept. One particular teacher who participated in the Craft & Hobby Association study explained that hands-on activities helped kinesthetic and visual learners transfer their expertise and enthusiasm to reading and writing activities after having experienced the concepts with their eyes and hands. Many of these "hands-on" activities incorporate cutouts and related manipulatives in some way to enhance students' overall learning experience.

Manual Die-Cutting Machines

Traditional, manual die-cutting machines use rollers and a turn-handle mechanism to cut as many as five dies in a single pass. The dies are made out of wood and come in numerous shapes. However, these dies cannot be physically adjusted to achieve different sizes of the same cutout, so a single, unique die is required for each desired shape and size. A typical school may accumulate hundreds of wood dies over time; therefore, adequate storage space for these is required. Dies need to be placed with the foam side up in storage cases either mounted on a wall or placed on a table. It is common to see dies alphabetized in storage cases, but this causes extra work when new dies are added. Often times, dies need to be numbered and there has to be a cross-reference list with a sample of each die numbered on a display board for a more user-friendly access. Die costs range from $20-$180, depending on the size and intricacy of the design. These traditional dies are not always suitable for achieving proportionally cut bulletin board displays, and typically do not come in very intricate designs.

eDies for the 21st Century Classroom

Recent strides in the development of new education technologies have allowed for cutouts and manipulatives to be created more easily and affordably than ever before. The VariQuest Cutout Maker 1800 (http://www.variquest.com/cutout-maker-1800) is the first electronic die-cutter designed specifically for the education market. It cuts letters, numbers and shapes in a wide range of sizes and materials including construction paper, cold-laminated construction paper, cardstock and bond paper. The Cutout Maker cuts shapes in a matter of seconds, giving teachers more time back in their classrooms. It connects to a personal computer or to the VariQuest Design Center (http://www.variquest.com/design-center-1000) – a touch screen system that comes pre-loaded with easy-to-use software that walks users through the creation of cutouts. There are nearly 5,000 curriculum-based shapes available for the Cutout Maker – all sold for as little as pennies per shape. All shapes are stored in the software on the computer or Design Center in the form of eDies (http://www.variquest.com/content/cutout_maker), eliminating the need for physical storage space. And unlike mechanical die-cutting systems, VariQuest eDies provide increased intricacy and scalability, ranging from 1" to 18" in size, which is ideal for the creation of large visuals like a United States map, for example.

In addition to standalone shapes, there are hundreds of pre-designed VariQuest bulletin board collections and fonts to choose from. Timely and educationally relevant is the recent addition of the Inauguration of President Barack Obama Bulletin Board Display (pictured below) to VariQuest's library of collections. Complementary lesson plans are also available to download for free by going to http://www.variquest.com/lessons-and-activities.

Conclusion

The use of cutouts and manipulatives is essential to differentiated instruction in the classroom, and so technology that helps to make the creation of these visuals easier and more affordable is a natural fit with the progressive classrooms of today. And while cutouts undoubtedly play a crucial role in the classroom, long-lasting, electronic die-cutting machines that leverage the intricacy only e-dies can offer and take the manual work away from the hands of teachers, hold the most potential for universal appreciation and full, effective use.

For more information

VariQuest education consultants and channel partners work with educators at all levels, from early childhood to post-secondary, every day to help them determine the best products to meet their needs. They can be contacted at http://www.variquest.com/request-a-demo.

To learn more about VariQuest Visual Learning Tools, including the revolutionary Cutout Maker 1800, visit www.variquest.com.