Construction in the imagineering classroom

by Sandra Duncan

Imagineering is a blended word of imagination and engineering. Alcoa, a premier producer and fabricator of aluminum, first used the word as part of a marketing campaign in a 1942 *Time* magazine advertisement. Alcoa believed in the power of their engineers' imaginations, so they developed the term *imagineering* to describe their work in the innovative use of aluminum. A decade later, The Walt Disney Company captured the term and created Walt Disney Imagineering (WDI), which is the creative development, design, and engineering arm of a company known for its boundless imagination and engineering creativity. Employees at WDI are known as imagineers whose passion for invention is infinite and whose abilities to engineer their innovations are limitless.

The need for imagineers

In today's world, it is becoming increasingly important that our workforce be not only knowledgeable and skilled in their trades, but also imagineers who can imagine and engineer useful products and services for tomorrow's consumers. Duncan, DeViney, and Harris (2010) believe, "Our society needs creative thinkers who can come up with ways to solve problems by using different materials or perspectives and putting them together in unique but useful solutions" (p. 60).

Sadly, some experts in the field of creative studies believe that adult creativity is on the decline (Bronson & Merryman, 2010). This is very unfortunate, especially when there is evidence that children are born with imaginative tendencies (Amabile, 1990). Research also confirms that infants demonstrate creative initiatives with their moms (Lebovici, 1995). Anyone who has observed young children at play understands the extent of their imaginative capabilities.

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Yet, young children's imaginations and creative impulses seem to wane — or sometimes completely disappear — as they grow older, leading some to believe that children's environments and experiences may be affecting their imaginative and creative abilities. Fortunately, early childhood educators are in an excellent position to reverse this decline by giving children opportunities to become imagineers who can test and hypothesize, design and build, and grow and learn through the experiences of constructing.

When teachers think about construction, they typically think about building structures with blocks, especially unit blocks. Imagineering classrooms, however, provide opportunities to construct beyond the typical building, road, and bridge structures. By infusing a multitude of construction materials into the classroom, children can become imagineers, learning about the different characteristics of materials including their strengths and capabilities. By playing with a variety of engaging materials, children discover how to express their ideas, which results in unique and interesting constructions such as mobiles and sculptures. With carefully selected materials and intentionally designed environments, teachers can encourage children to become imagineers.

Encouraging imagineers

Again, teachers often consider the block corner to be the primary space for construction. In the imagineering classroom, however, construction opportunities are available throughout the environment. For example, imagineers construct three-dimensional graphs in the math corner, skeleton sculptures in the science area, and nature mobiles in the art center. To get started, employ the following five tips — and let the imagineering begin!

Imagineers Need a Safe Environment

One of the most important roles that teachers play in an imagineering classroom is to create an environment that is safe for children to take risks and not be afraid to make mistakes. Unfortunately, children quickly learn about the

world of right and wrong answers, so being young imagineers can be scary. As designers and builders of projects, it is important that children feel safe enough to take chances, because there is more than one right answer and making mistakes is how we learn. Encouraging imagineers to flourish means creating a classroom atmosphere built on exploration and investigation with plenty of opportunities to test hypotheses.

Imagineers Need Space and Time

In an imagineering classroom, teachers value the important work of construction (Chalufour & Worth, 2004). Because teachers understand its importance, they are intentional in designing spaces that encourage children to build and construct. Plenty of square footage, for example, is dedicated to construction zones with sizeable work spaces. Because designing can be messy, some construction zones should have flooring that is easily cleaned. A quick solution to a totally carpeted space is positioning vinyl sheet flooring in areas where children use messy materials. (Companies such as Armstrong, for example, offer vinyl sheet floorings that replicate stones, woods, and other natural materials. The product comes in a roll and can easily be cut with a box cutter, breakaway blade knife, or scissors into different sizes and shapes. This affordable flooring that can be found at your local home improvement or hardware store is versatile and quickly turns carpeted spaces into areas for industrious construction.)

In addition to plenty of work space, imagineers also need time to construct and reconstruct, which means allocating significant chunks of time in the daily schedule when children can immerse themselves in their in-depth work and revisit as often or long as they wish without fear of interruption. In a classroom that values construction, children are focused in their efforts and are persistent in their work (Hyson, 2008). Children's innovations are not instantaneous so it is necessary to think about the storage of the imagineers' works-in-progress. Teachers in an effective imagineering classroom have pre-identified spaces and intentional places for children to house their work.

Imagineers Need Open-Ended Resources

Imagineers need a variety of materials to transform into creative constructions. A perfect resource for imagineering is recycled materials. The characteristics of recycled materials help "to develop a reflective attitude that sustains the manual and creative expression of children" (Gandini, 2005, p. 41). Since recycled materials come in a variety of shapes, textures, colors, and forms, they authentically support children's creative thinking and expressions.

Recycled materials engage children's creativity and imaginations because they are open-ended. The way in which children use these materials is only limited to their endless imaginations. With these open-ended materials, there are no preconceived notions, so it is the children's imaginations that determine the materials' uses and functions. It is the children who define the realities of the recycled objects: for example, a cardboard tube becomes a skeleton's spine, a vase for a handful of tissue flowers, or some bumps on a dinosaur sculpture. Since there are no expectations or anticipation of the end product that should result, children gravitate to it with confidence and without intimidation (Drew & Rankin, 2004). Clearly, recycled materials are the fuel and power of children's imaginative spirits.

Freecycle is a grassroots network committed to waste reduction and saving landscape from landfills. You can give and get free recycled materials. Look for a site in your neighborhood by visiting www.freecycle.org.

Imagineers Need Ownership and Distinction

When children are given opportunities to gather and contribute materials for construction, they assume ownership and become more engaged in the creations they build. While children are finding and gathering materials, it is important for teachers to intentionally guide imagineers to investigate, collect, and imagine how they might use their found items in their construction. Sullivan (2007) believes, "When children have the chance to notice, collect, and sort open-ended materials, and when teachers respond to their ideas, children imagine themselves as artists, designers, and engineers" (Sullivan, 2007, p. 1).

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When children create, they feel powerful. Lasso that power and give imagineers the distinction they deserve by displaying their constructions throughout the classroom. Effective teachers are provocateurs who help

children "provoke further thought and action" (Fraser & Gestwicki, 2002, p. 11). Teachers in an imagineering classroom help children think about how and where they wish to display their constructions. When teachers give children a place to save their work, the message is clear — they value children's constructions.

Conclusion

All children can become imagineers. Giving children opportunities to construct — especially with open-ended recyclable materials — provides experiences that inspire imaginations. By designing an environment for teaching and learning that values construction, the possibilities are endless.

When children create, they feel powerful.

PHOTOGRAPH BY JESSICA DeVINEY

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