Learning Materials for Children of All Abilities: Begin With Universal Design

by Kirsten Haugen

Three young children play with bright wooden puzzles. Paola traces her fingers over and around a bumpy tree shape, as she searches for its spot. Mackenzie grabs the knob on the final piece of a truck puzzle, twists it into place and says, "Let's do it again, Mason!" And grinning broadly, Mason spills all the pieces out again, for the tenth time! Not much would surprise you about this joyful activity, except perhaps to learn that Paola is legally blind, and Mason, who has cerebral palsy, struggles to control his hands and arms. And while the puzzles are common enough, they were deliberately chosen, thoughtfully adapted, and creatively used to foster play and learning among the widest possible range of children.

A planned approach

A conscious approach to choosing, adapting, and using learning materials can make early childhood programs more welcoming and successful for all children, including children with disabilities. Take a closer look at the puzzles Paola, Mackenzie, and Mason were using. The bright colors and interesting textures draw all children in, while providing an essential means for Paola to enjoy and solve the puzzles. The large knobs on the truck puzzle are helpful to Mason as he develops coordination skills. At the moment, he's fully engaged in the critical, interactive, and fun role of tipping the pieces out for Mackenzie, as they happily explore the skill of turn taking.

- Stepping back from the scene, you might notice the wide-open space that enables Mason to maneuver his wheelchair around the whole table.
- A puzzle piece has been glued onto the label for the puzzle shelf, for Paola to feel and others to see.
- Some of the form boards will light up or play music once all the pieces are in place, while a few of the traditional puzzles now have the pictures outlined with puffy craft paint.
- Rubbery non-skid mats are on hand to keep puzzles from sliding around, and help children organize their materials as they work.
- Nearby, a low-hung whiteboard provides a vertical surface for exploring magnetic puzzle shapes that move easily, but stay put.

A developmental perspective and a healthy dose of creativity put most early educators well on the road to accommodating children of all abilities. Choosing materials with *universal design* features in mind takes this welcoming attitude to a purposeful level. Careful observation, combined with guidelines on when and how to adapt materials (see chart) will further support children's active participation. Some children will still rely on special equipment, such as a communication

Kirsten Haugen is a writer and consultant for educational and assistive technology, promoting inclusive strategies for early learning, literacy, and play. She has contributed to previous Beginnings Workshops and has participated in four World Forums. (See you in Quebec!) She lives in Eugene, Oregon, with her husband and two sons.

device or switch-operated toys. If so, teams can consider how to make such equipment a natural, mutually beneficial addition for all.

Begin with universal design in mind

According to Ron Mace, an early advocate of the concept, "Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design." Sue Mistrett, director of the *Let's Play Project* at the University of Buffalo, puts it this way: "Universal design is making everyone feel comfortable the moment they come in the door." In fact, automatic doors and keyless entry systems are excellent examples of universal design, as are curbside ramps, easy-grip kitchen utensils, public signs with internationally recognized colors, shapes, and symbols, and closed captioning devices built into televisions.

Applying the principles of universal design to the preschool setting can make early childhood programs more welcoming to Paola, Mason, and other children with special needs, and decrease the need for specialized equipment — by choosing, adapting, and using everyday materials in ways that enhance opportunities for *all* children to participate, play, and learn. From the familiar and classic, to the new and novel, Mistrett points out that universally designed learning materials share some common features: they are appealing, easy to use, flexible, multi-sensory, and adaptable to a variety of users and situations. They often invite cooperation, and they don't single out or stigmatize the user. A few familiar examples further illustrate the point.

Balls

A basket full of balls to roll, bounce, drop, shoot, bowl, toss, or squeeze can entice most young children into motor and social play. Rubbery, knobby, squishy Gertie™ balls are irresistible to touch and easy to catch and throw. Roll it, and it bumps slowly along, making it easy to track. Tennis-ball sized Fling Socks™ with long, colorful nylon tails are easy to track and catch, while balls like the Wiggly Giggly ball™ that make noise or light up as they roll or bounce will get a child's attention and provide extra cues to children with sensory impairments. Variety is key to finding a good fit, and it will also foster children's ability to compare and categorize.

Blocks

With such variety of shapes, materials, sizes, and weights, blocks are another excellent example of universal design. They don't need instructions, and in fact can become whatever children wish — a wall, a race car ramp, a cascading row of dominoes, a farm, house, or castle, units of measure, a percussion instrument, and more. Look for blocks with magnets to aid in stacking. Some blocks come with textured sides, or with shakers and bells inside, adding to the sensory experience.

Books

Books come in so many formats; it's easy to build a library with something for everyone. Books with textures, flaps, and cut-outs invite kids to explore. Plastic or cardboard pages are often easier to turn. Some books come with buttons to make sounds or read the story. A great many stories for young children are now available on the computer, providing an opportunity for children who cannot hold a conventional book to explore the world of literacy.

A key part of universal design is universal appeal, for children and adults alike. Ellen Metrick, of Lekotek, notes, "If a child isn't interested, even if he *can* do it, he's not going to. For the caregivers themselves, it's also true. If the caregiver is bored, the child isn't going to be all that excited, either. If YOU are excited, then the child is going to feel that excitement, too, and join in. That's where the development happens. That's where things kick in."

Adapt materials as needed

When a child is unable to do something in typical or expected ways, it's critical — and often fun and thrilling — to discover alternative ways for the child to explore, experiment, and accomplish key developmental tasks. Take time to watch children in the classroom, and notice who fully (and joyfully) participates and who does not. Then consider what you might do so that every child might participate in some way. The chart (available at www.ChildCareExchange.com/free_resources) shows several examples of ways to adapt materials in the early childhood classroom. The main ingredients for successful adaptations are careful observations and imagination.

Assign cooperative roles

Sometimes we cannot find or adapt materials to let all children participate in similar ways. Another way to enhance participation is to provide different roles that encourage cooperation. If it's time to make smoothies, one child can scoop yogurt, another can pour juice, and yet another can turn the blender on, using an adapted switch if needed. If children are playing a game beyond one child's ability, that child can be the chief dice roller, spinner, whistle blower, or timekeeper. Sometimes the best way to include all children is to be flexible with materials, activities, and ideas about what participation means.

Integrate special equipment

An astounding variety of special equipment is available to accommodate children with disabilities, including wheelchairs, talking communication devices, and ability switches that let children activate toys, music players, or other appliances with a simple touch or movement. While specialized equipment is often necessary, it can be stigmatizing when it's reserved only for use by children with disabilities. In their *Play and Learn* curriculum, Sullivan Coleman and Krueger have addressed this problem with a delightful example, creating a "DJ Station" where children take turns using large, colorful, easy-to-activate ability switches to turn on music and lights for group movement and dance activities. They select from the many wonderful songs that teach concepts from colors, ABCs, and numbers to social skills and more. The DJ Station puts the child who typically has difficulty joining conventional motor activities into the spotlight as a leader. The switches they use are specialized equipment in the strictest sense, but once they're added to the DJ Station, they become universal design through their broad appeal, ease-of-use, and flexibility.

Connect with more resources

A wealth of resources are available to anyone who wants to learn more about choosing, adapting, and using learning materials in ways that work for all children. The Let's Play! Project at the University of Buffalo offers a web site packed with free information about universal design and adapted play. The Alliance for Technology Access offers free activity pages on a range of accessible play ideas, in English and Spanish. Lekotek, a national network of toy lending libraries, offers numerous handouts on choosing and adapting toys, as well as a Toy Hotline to call with questions. See the resource section of this article for details on these resources and more. With resources in hand and an open mind, we can truly open the door for all children to learn and grow.

Acknowledgements

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Resources and references

The books and web sites marked with an asterisk (*) also offer free materials to download, print, and share with families, colleagues, students, and others.

Books and Articles:

The Center for Universal Design (2003). *Creating Inclusive Child Care Facilities: A Guide for Child Care Professionals.* Chicago: Easter Seals (To order or learn more: www.design.ncsu.edu:8120/cud/pubs/childcare.htm).

*Connell, B. R., Jones, M. Mace, R., et al. (1997). "The Principles of Universal Design," Raleigh, NC: The Center for Universal Design, North Carolina State University. (www.design.ncsu.edu/cud/univ_design/princ_overview.htm). Definition, history, and principles of universal design. Download text or color poster.

*Haugen, K., & Wershing, A. (2001). *We Can Play.* San Rafael, CA: Alliance for Technology Access. (www.ataccess.org/resources/wcp/endefault.html). Download one-page accessible play ideas on common themes, such as water play, puppets, birthdays, and more. In English and Spanish.

*Mistrett, S., Goetz, A., Tona, J., & Lawrence-Dederich, S. (2000). *How We Play: A guidebook for parents and early intervention professionals, birth to two.* Buffalo, NY: Let's Play! Project. (http://letsplay.buffalo.edu/products/index.htm). A colorful booklet to download and print.

PHOTOGRAPHS BY LAURA KRUEGER

*Mistrett, S., Lane, S., & Goetz, A. (2000). *A Professionals Guide to Assisting Families in Creating Play Environments for Children with Disabilities*. Buffalo, NY: Let's Play! Project. (http://letsplay.buffalo.edu/products/index.htm).

Sullivan Coleman, M. J., & Krueger, L. (1999). *Play & Learn: A motor-based preschool curriculum for children of all abilities*. Minneapolis, MN: AbleNet, Inc. (www.ablenetinc.com/product_playandlearn.asp).

Web Resources:

***Exceptional Parent Magazine's 2003 Annual Toy Review** (www.eparent.com/toys/default.htm). Articles and reviews of toys that work well for children with disabilities.

***Let's Play! Project** (http://letsplay.buffalo.edu/). Information on selecting toys for play, toys for children with disabilities, adapting toys to make them easier to use, locating specially designed toys as well as other resources to promote play. University at Buffalo, Center for Assistive Technology, 322 Kimball Tower, Buffalo, NY 14214, (716) 829-3141, Fax: (716) 829-2420, e-mail: info@letsplayprojects.com.

Toys and Playtime Tips for Children with Special Needs (www.fisher-price.com/US/special_needs/default.asp) Fisher-Price, in conjunction with Let's Play! Projects, offers extensive guidelines on choosing and using toys with children who have disabilities, by looking at play stages and at developmental areas where assistance is needed.

***National Lekotek Center** (www.lekotek.org). This national non-profit provides toy lending libraries and training in play strategies for families and educators, plus suggestions on choosing and adapting toys for children with disabilities. 3204 W. Armitage Avenue Chicago, IL 60647, (773) 276-5164 Fax: (773) 276-8644, Toy Resource Helpline: (800) 366-PLAY.

***We Can Play!** (www.ataccess.org/resources/wcp/endefault.html). Download one-page accessible play ideas on common themes, such as water play, puppets, birthdays and more, from the Alliance for Technology Access. In English and Spanish.

To download the chart:
Steps for Adapting Materials for Use by All Children
go to www.ChildCareExchange.com
under Training Resources Tab —
go to "Free Resources"

Using Beginnings Workshop to Train Teachers by Kay Albrecht

Universal design? It applies to everyone!: Haugen surprises us a little by grounding her discussion of learning materials for all children and rejecting adaptation or specialized accommodation or design. Instead, she encourages us to begin with universal design principles. To help teachers understand and apply these principles, put together a collection of learning materials to analyze them for the universal design principles listed on page 46.

Adaptation is the key: The wonderful chart with steps for adapting materials for use by all children is available at www.childcareexchange.com. Download this useful tool and plan a purposeful training session where teachers use the strategies to actually adapt materials for use in their classrooms to meet all children's needs.