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Developing Fine Motor Skills

J. Michelle Huffman and Callie Fortenberry

On a crisp September morning during my first year teaching kindergarten, Mrs. Lucio and I [Michelle] met to discuss her son's progress. I eagerly shared that Mario was inquisitive, creative, and quite intelligent. His literacy skills were emerging rapidly. He could identify all upper- and lowercase letters, was phonemically aware, and recognized many sight words. However, Mario had great difficulty writing his name.

Mrs. Lucio's frustration and confusion were evident. The family had provided Mario with pencils, paper, and hand-over-hand writing demonstrations. They had done all they knew to do to help him master this skill. How could it be that this child was not able to write his name?

EARLY CHILDHOOD is the most intensive period for the development of physical skills (NASPE 2007). Writing progress depends largely on the development of fine motor skills involving small muscle movements of the hand. Muscle development for writing is a comprehensive process that begins with movements of the whole arm and progresses toward very detailed fine motor control at the fingertips (Adolph 2008). Much like an amateur runner who cannot run a marathon without proper training, a child cannot master the art of conventional writing without the proper foundation of muscle development.

Young children need to participate in a variety of developmentally appropriate activities intentionally designed to promote fine motor control. Fine motor skills are difficult for preschoolers to master, because the skills depend on muscular control, patience, judgment, and brain coordination (Carvell 2006). Children develop motor skills at different rates. Teachers must encourage motor development with developmentally appropriate tasks that are achievable at any age or with any skill set (Bruni 2006).

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J. Michelle Huffman, MS, is the Early Reading First grant facilitator for the Child Development Center in Mount Pleasant, Texas. Michelle has worked in the early childhood field for over 20 years and is a doctoral candidate at Texas A&M University, Commerce. jhuffman@mpisd.net

Callie Fortenberry, EdD, is associate professor of education and reading at Texas A&M University–Texarkana. Callie teaches education and emergent literacy courses and works closely with preservice early childhood teachers.

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Activities That Promote Fine Motor Development

These simple activities engage children in different levels of motor development in preparation for writing.

Muscle development	Activity and materials	Description
Whole arm	**Under-the-Table Art** Large sheet of drawing paper, tape, and crayons	Tape the paper to the underside of a table. Children lie on their backs under the table, extend the arm with crayon or chalk in hand, and draw on the paper.
	Ribbons and Rings Set of plastic bracelets and 12 inches of colored ribbon for each bracelet	Attach a ribbon to each bracelet using a simple slipknot. Play music. Children wear or hold their bracelet, using their bracelet arm to make big circles, wave the ribbons high and low, and perform other creative movements.
	Stir It Up! Large pot, long wooden spoon, and dry beans, pebbles, or pasta	Put the dry ingredients and the spoon in the bowl, and place them in the dramatic play area. Children "stir the soup" using a large circular arm motion.
Whole hand	**Sponge Squeeze** Small sponge, divided food dish, and water	Fill one side of the dish with water. Children transfer the water from side to side by dipping and squeezing the sponge.
	Lid Match Two baskets and a collection of plastic containers with matching lids (spice jars, margarine tubs, yogurt cups, shampoo containers, hand cream jars, and such)	Sort the containers and lids into separate baskets. Children match and attach the lids to the right containers.
	Cornmeal Sifting Crank-style sifter, 1-cup plastic measuring cup, large bowl, and cornmeal	Place the empty sifter in the bowl. Children use two hands to pour the cornmeal into the sifter, then turn the crank handle to sift the cornmeal into the bowl.
Pincher	**Button Drop** Four plastic containers with lids, and buttons	Cut a slit in each lid and label each container with a color. Children sort the buttons by color and drop them into the appropriate containers.
	Color Transfer Eyedroppers, muffin tin, food coloring, water, and a section of rubber bath mat backed with suction cups	Fill the muffin tin compartments with water of different colors. Children use the eyedroppers to transfer drops of colored water into each suction cup.
	Using Tongs Spring-handle metal tongs, sorting trays (ice cube trays, egg cartons, divided dishes, small containers), and items to sort (counting bears, acorns, buttons, pom-poms)	Show children how to use their thumb and middle and index fingers to manipulate the tongs. Children use the tongs to pick up the items and sort them into separate compartments or containers.
Pincer	**Capture the Cork!** Corks in a variety of sizes, a bowl of water, and tweezers	Put the corks in the bowl of water. Children use the tweezers to try to capture the floating corks.
	Locks & Keys A variety of small locks with keys	Close the locks. Children try to determine which keys work with which locks and unlock them.
	Clip It A variety of small barrettes, hair clips, and elastic bands; dolls with hair, brushes, combs, and a tray for materials	Children use the hair fasteners or elastic bands to divide the dolls' hair into small sections. Clips that fasten in different ways and small elastic bands support a range of motor skill levels.

Adapted with permission from Nell R. Carvell, *Language Enrichment Activities Program* (LEAP), vol. 1 (Dallas, TX: Southern Methodist University, 2006).

Stages of fine motor development

Just as there is a progression in gaining cognitive abilities, so too there is a sequence in developing muscles. Four stages of fine motor development set the stage for early writing success—whole arm, whole hand, pincher, and pincer coordination (Carvell 2006). Fine motor development begins with strengthening and refining the muscles of the whole arm. As young children participate in large arm movements, such as painting a refrigerator box with paint rollers and water or tossing a beach ball into a laundry basket, they use their entire arm. This full arm movement is a precursor to muscle development of the hand.

Pouring water from one container to another and squeezing water from a turkey baster develop the muscles of the whole hand. Strengthening the hand muscles leads to the ability to coordinate the finer movements of the fingers. Children develop the pincher movements by pressing the thumb and index finger together. Clipping clothespins on a plastic cup, stringing beads, and tearing paper are activities that support this development.

Pincer control is the final stage of fine motor development. With other skills in place, children are now prepared to properly grasp markers, pencils, and other writing utensils as they engage in authentic writing activities. This coordination allows the thumb, index, and middle fingers to act as a tripod, supporting the writing utensil and enabling small, highly coordinated finger movements.

In the classroom

As noted in the NAEYC Early Childhood Program Standards, teachers can give children multiple and varied opportunities to support their physical development. The daily routine, frequency of activities that foster fine motor development, and types of materials teachers provide all influence children's muscle development (NAEYC 2007). In "Activities That Promote Fine Motor Development," we suggest a number of easily implemented activities teachers can use that enhance young children's fine motor development.

Conclusion

Many kindergartners feel frustrated when they face the daunting task of conventional writing. In Mario's case, we identified the root of his writing difficulty—lack of motor development in his hands. We planned ways to support his developmental needs. Rather than asking Mario to write, we replaced paper and pencil tasks with developmentally appropriate experiences that helped him develop his fine motor skills.

Classroom environments can build children's whole-arm, whole-hand, pincher, and pincer coordination in preparation for learning to write.

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When preschool teachers observe children, they have endless opportunities to gather information about each child (Owocki & Goodman 2002). Throughout the day, perceptive teachers use their keen sense of observation to note how children use their arms, hands, and fingers. Responsive teachers can alleviate frustration and nurture emerging fine motor skills by providing materials and activities that support differentiated instruction for each stage of physical development. With intentional planning and preparation, classroom environments can build children's whole-arm, whole-hand, pincher, and pincer coordination in preparation for learning to write.

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