Hand Dominance

Construct Progression

**DOMAIN:** Physical/Motor Development

**CLAIM:** Students can demonstrate competencies in motor skills and movement patterns.
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**Construct:** Hand Dominance

### Background Information
Children will not ALWAYS use their dominant hand in every activity and setting. Some hand switching can be expected even at the highest level of this progression. If a child is only using one hand (same hand) to complete every task and ignoring the other hand, further evaluation of fine motor skills may be required.

### Rationale
Piaget (1954) was one of many developmental psychologists who linked motor skill development with improvements in perceptual and cognitive development. Motor and cognitive functions tend to follow a similar timeline with intensified development between the ages of five and ten (Gabbard, 2008). Grismmer et. al. (2010) emphasize the importance of motor skill development in children. Their data analyses suggest that fine motor skills were a strong predictor of achievement. When analyzed collectively, “attention, fine motor skills, and general knowledge are much stronger overall predictors of later math, reading, and science scores than early math and reading scores alone” (Grismmer et. al., 2010, p. 1008).

Recent research stresses the importance of facilitating both motor and academic development as the two continue to be linked in neuroscience research. When comparing gross motor skills of age matched children with and without learning disabilities, researchers found a specific relationship between reading and locomotor skills and mathematics and object control skills - the greater the learning delay, the poorer the motor skills (Westendorp, Hartman, Houwen, Smith, & Visscher, 2011). Sibley and Etnier (2003) conducted a meta-analysis showing a positive correlation between physical activity and seven categories of cognitive performance (perceptual skills, intelligence quotient, achievement, verbal tests, mathematics tests, developmental level/academic readiness, and other) among school-aged children. Crossing the midline is an important milestone of development, reflecting integration of the bodily midline which allows for bilateral coordination (Stilwel, 1987), and is related to hand dominance. Difficulty crossing the midline has been linked to a cluster of sensory, perceptual and motor difficulties exhibited by some children with learning exceptionalities (Ayres, 1972; Michell & Wood, 1999; Stilwell, 1987; Murata & Tan, 2009). Previous research suggests that failure of child between the ages of three and four, to cross the midline could predict later potential problems in development (Michell & Wood, 1999).
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<table>
<thead>
<tr>
<th>Skills</th>
<th>Performance Descriptors</th>
<th>Example</th>
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</thead>
</table>
| A. Uses no established dominance for lead/dominant hand (switching still continues). | Child shows no preference for one hand over the other and uses both hands interchangeably during activities. | Maria switches her crayon back and forth between hands when coloring at a table.  
Isaiah switches his spoon back and forth between hands when eating yogurt  
Ranisha switches her scissors back and forth between hands when cutting paper. |
| B. Uses established dominant hand. | Child shows a consistent preference for one hand over the other and uses this hand during activities. | Darnell draws with his left hand (dominant hand) but doesn't stabilize paper with his right hand.  
Nina holds the fork with her right hand (dominant hand) but doesn't stabilize the plate with her left hand.  
Archer cuts with her right hand (dominant hand) but doesn't turn the paper with her left hand to help her cut out a shape. |
| C. Manipulates with dominant hand with assistance from other hand. | Child shows a consistent preference for a dominant hand and uses the other hand to assist during activities. | Declan draws with his right hand (dominant hand) and stabilizes the paper with his left hand.  
Ebony holds a fork with her left hand (dominant hand) and stabilizes the bowl with her right hand.  
Manuel cuts with his right hand (dominant hand) and turns the paper with his left hand to help him cut out a shape. |
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Resources


