

Fine Motor

Developmental Sequence for Early Motor Imitation

- Motor Imitation with objects
- Gross motor imitation of leg and arm movements
- Generalized imitation of “novel movements”
- Imitation of fine motor movements
- Imitation of sequences
- Delayed imitation

(McGinnis, 2013)

Why is motor imitation so important?

- Research suggests that early motor skills are an indicator of optimal outcomes in children with autism
- Can be used to establish a mand repertoire
- Fluent fine motor and oral motor imitation are correlated with fluent speech
- Strong imitation with objects is correlated with spontaneous play skills

Selecting targets for Imitation

When selecting targets consider the following:

- The child's chronological age
- Developmental norms
- Functionality/social validity of skill
- Teach 'meaningful' actions before non-meaningful
- Location is easiest to acquire first
 - Choose targets that are in highly contrasting areas first
- Movement – bidirectional actions (bouncing) are easier to learn than unidirectional

Order in which movement aspects are acquired

Level 1

- Contact

Level 2

- Close
- Downward

Level 3

- Twist
- Nod/bend
- Side-to-side
- Up-and-down

Order in which movement aspects are acquired

Level 4

- Wiggle
- Link
- Away
- Toward
- Cross
- Upward
- Right/left
- Circular
- Interchange
- Converge
- Open
- Pronate (rotating arm to palm down position)
- Supinate (rotating arm to palm up position)
- Diverge

The Effects of Fluent Levels of Big 6+6 Skill Elements on Functional Motor Skills with Children with Autism

THE EFFECTS OF FLUENT LEVELS OF BIG 6 + 6 SKILL ELEMENTS ON FUNCTIONAL MOTOR SKILLS WITH CHILDREN WITH AUTISM[†]

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Functional motor skills are often taught using chaining procedures. Research suggests that chaining procedures are not likely to be effective if they do not focus on the accuracy and speed of composite skill completion. Precision teaching (PT) research suggests that improved performance of a composite skill can be achieved if the performance speed of the component behaviors is increased. This study assessed the effects of repeated timed practice of component motor skills on speed and accuracy of composite skills and the effects of fluent component motor skills on the completion of daily living composite skills. Three children with autism participated. The results suggest that all participants were able to perform the component skills at their individual aims and performed most of the component skills at fluent levels as assessed by retention and endurance checks. Each participant increased the number of composite skill steps performed independently and one decreased the overall time to complete the composite skill. Copyright © 2010 John Wiley & Sons, Ltd.

The Effects of Fluent Levels of Big 6+6 Skill Elements on Functional Motor Skills with Children with Autism

The Big 6+6

- Reach
- Touch
- Point
- Place
- Grasp
- Release

- Push
- Pull
- Shake
- Squeeze
- Tap
- Twist

The Effects of Fluent Levels of Big 6+6 Skill Elements on Functional Motor Skills with Children with Autism

- Research has shown that most treatments for building motor skills are not likely to be effective unless they focus on both accuracy and fluency of the skill.
- Improved performance of a composite skill (ie. Putting on a sock) can be achieved if the performance speed of the component behaviours is increased
- Most procedures currently do not put emphasis on fluency (accuracy + speed)

The Effects of Fluent Levels of Big 6+6 Skill Elements on Functional Motor Skills with Children with Autism

- Researchers determined which daily living skills the participants struggled with
- They broke the daily living skill down to the component skills
 - I.e. Putting on a sock:
 - Reach
 - Grasp
 - Pull
 - Place

The Effects of Fluent Levels of Big 6+6 Skill Elements on Functional Motor Skills with Children with Autism

Intervention

- Each component skill was practiced in 15s timed intervals
- A preferred stimulus was used
- Verbal prompts were used and a tangible reinforcement was offered at the end of the trial
- Timing intervals were conducted until the child met the recommended fluency or could independently complete the daily activity skill

The Effects of Fluent Levels of Big 6+6 Skill Elements on Functional Motor Skills with Children with Autism

When progress was not shown:

- A warm up activity was used
 - 'maxi-guiding' – full hand over hand prompting that involves very fast movements per timing
 - Present the procedures in a fun way

The Effects of Fluent Levels of Big 6+6 Skill Elements on Functional Motor Skills with Children with Autism

Retention

- The practiced timings were put on retention for a week after the children met mastery criteria
- One week later they were reassessed

The Effects of Fluent Levels of Big 6+6 Skill Elements on Functional Motor Skills with Children with Autism

Results

- All three participants in the study achieved fluent levels of the component skills
- All participants improved the performance on the corresponding daily living skills by increasing the number of steps performed independently
- The children were also able to perform the daily living skills faster

Revised Target List – Fine Motor

- The target list is now divided into levels, starting with the easiest targets and working up to the toughest
- The targets are taken from ESDM and Amy McGinnis's work
- Amy McGinnis puts a large focus on teaching ASL hand shapes as targets – beneficial for signers

Revised Target List – Fine Motor

Level 1

1. 5 (hand shape)
2. G (hand shape)
3. Puts pegs in pegboard
4. Push button on pop up toy
5. Pull apart duplos, pop beads
6. Stacks 3 blocks
7. Scribbles with marker
8. Makes dots with marker
9. Bands pegs with toy hammer
10. Scoops sand/rice
11. Pours sand/rice

Revised Target List – Fine Motor

Level 2

1. B (hand shape)
2. A (hand shape)
3. Stacks 1 inch Legos
4. Puts together pop beads, duplos
5. Put stickers on paper
6. Zips up zipper
7. Unzips zipper
8. Puts large object on thick string, pipe cleaner
9. Imitates strokes on paper
10. Snips paper with scissors
11. Places coins, checkers in slot

Revised Target List – Fine Motor

Level 3

1. O (hand shape)
2. C (hand shape)
3. L (hand shape)
4. Imitates drawing a circle
5. Imitates drawing a square
6. Imitates drawing a cross
7. Imitates drawing diagonal line
8. Laces a stitch
9. Traces line with finger

Revised Target List – Fine Motor

Level 3

10. Traces curve with finger
11. Picks up items with tongs
12. Picks up item with fork
13. Stamp with ink pad
14. Places glue on item
15. Folds paper

Revised Target List – Fine Motor

Level 4

1. V (hand shape)
2. K (hand shape)
3. X (hand shape)
4. 3 (hand shape)
5. H (hand shape)
6. E (hand shape)
7. F (hand shape)
8. Q (hand shape)
9. D (hand shape)
10. Z (hand shape)

Revised Target List – Fine Motor

Level 4

11. Y (hand shape)
12. L (hand shape)
13. J (hand shape)
14. M (hand shape)
15. W (hand shape)
16. U (hand shape)
17. T (hand shape)
18. P (hand shape)
19. R (hand shape)
20. 6 (hand shape)

Revised Target List – Fine Motor

Level 4

21. 7 (hand shape)
22. 8 (hand shape)
23. Colours pictures in lines
24. Imitates drawing triangle
25. Places envelope in paper
26. Uses an eraser
27. Uses a paintbrush
28. Places tape on surface/paper
29. Places key inside a lock
30. Turn key
31. Places paper clip on paper

Fine Motor Idea List – based on Big 6+6

Reach

- Hold object in various positions in front of child

Grasp

- Squeeze bag clips
- Put clothespins on cardboard
- Pick up items with tongs
- Squeeze eye dropper
- Squeeze baster
- Pick up items with tweezers

Fine Motor Idea List – based on Big 6+6

Pull

- Resistance bands (place around child's shoulders)
- Separate pop beads
- Pull apart duplo blocks
- Pull tubes
- Open Ziploc bag
- Pull cookie cutter out of playdough

Fine Motor Idea List – based on Big 6+6

Place

- Place hat on head
- Put coins in piggy bank
- Put pompoms in water bottles
- Place rings on stacker
- Places shape in shape sorter

Fine Motor Idea List – based on Big 6+6

Touch

- Point to picture in books
- Poke playdough

Release

- Squeeze and release ball (squishy balls that light up or dog toys with squeaker for sensory/motivation)

Push

- Push down on soap dispenser
- Push pegs into board
- Cookie cutter into playdough

Fine Motor Idea List – based on Big 6+6

Shake

- Sensory bottle
- Maraca
- Tambourine
- Rain maker

Tap

- Drum sticks
- Hit items with hammer

Fine Motor Idea List – based on Big 6+6

Squeeze

- Playdough
- Squishy ball/dog toy for sensory/motivation
- Kinetic sand

Twist

- Remove screw on cap
- Turn on/off taps

References

McGinnis, A. *Skill Sequences & Strategies in Training Motor Skills* [PowerPoint slides]. Retrieved from <http://autism.outreach.psu.edu/sites/omcphplive.outreach.psu.edu.drpms.autismconference/files/69-Presentation.pdf>

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