

## A multisensory approach to handwriting

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### Executive summary

This case study explores how the use of multisensory activities and approaches to learning assist with learning new skills. It will explore how incorporating sensory-based activities both prior to and during a new activity, such as mark making/ writing assists with retention of learning.

### Introduction

The study focuses on an 11-year-old with a diagnosis of Autism Spectrum Disorder (ASD) and Global Developmental Delay (GDD). They attend an Applied Behavioural Analysis (ABA) school and receive 1:1 support from an adult throughout their day. They additionally receive 1:1 Occupational Therapy intervention for 15 minutes a week.

This student has difficulty engaging in fine motor and tabletop activities due to their poor attention, body awareness, visual motor integration and pen control. Their current Occupational Therapy learning objectives surround developing imitation skills for letter formation. For example, being able to imitate the letter 's' underneath an example an adult has written above.

“A multisensory approach to treating children with hand writing problems is an important and frequent area of practice for school-based Occupational Therapists.” (Woodward & Swinth, 2002). This approach was deemed to be appropriate for the individual concerned due to their aforementioned areas of difficulties and the effectiveness of a multisensory approach to handwriting.

### Methodology

A range of multisensory strategies and activities were used with the student both prior and during their engagement in writing activities. An example of how these were used during an OT session can be found below;

1. Warm up (5–10 minutes of proprioceptive based activities)
  - 4 x walking along a balance bench
  - 5 x prone therapy ball roll outs with 10 x high fives crossing over the body at end range
  - 5 x hand presses or 10 x TheraBand stretches.
2. Seating/set up
  - Sitting on a spikey peanut ball
  - Using a vertical whiteboard at eye level.
3. Imitation/writing (5–10 minutes of)
  - Pupil observed OT write the letter 's' on whiteboard 3 times
  - Pupil traced over 's' with their finger (erasing it as they moved their finger over the letter)
  - OT wrote 's' on whiteboard
  - Pupil traced over 's' with thick marker
  - Pupil imitated 's' next to traced 's'
4. Movement break (1–2 of the following provided after completion of step 3, before repeating step 3 again)
  - Compressions at shoulders whilst sitting on peanut ball at whiteboard
  - Jumping on the spot
  - Rocking on the spot

### Results

Both qualitative and quantitative evidence were used to assess the results of a multisensory approach to imitating letter formation for this individual.

Qualitative information in the form of clinical observations was documented in case notes, whilst discussions between the Occupational Therapist and the pupil's 1:1 Tutor was also taken into consideration. These discussions illustrated that when fewer multisensory strategies were used the student's ability to imitate the letter 's' was reduced. For example, if they did not engage in the warmup activities and/or were not provided with a movement break in between each imitation attempt their ability to imitate the letter 's' was reduced and a physical prompt was required. This concept of therapists using many, not just one or two multisensory modes and activities was highlighted by Woodward and Swinth (2002) who found

“the most frequently reported number of multisensory modalities and activities used per student was five or more.”

Quantitative information in the form of documenting the independence level for each imitation trial was also obtained and documented in the clinical case notes. This indicated that over the last three Occupational Therapy sessions the pupil achieved 80%, 100% and 70% independence levels when completing 10 x 's' imitation trials.

## Conclusions and discussion

A multisensory approach to learning new skills such as handwriting is important for children. This has highlighted that there are multiple ways we can incorporate these into practice, including how we position our body, use our voice or hands and, that more multisensory methods are generally better than less. For this particular individual this means that they have made progress towards a new skill and achieving a target that has previously been very difficult. In conclusion it is important that children are provided with opportunities to engage in multisensory learning techniques in writing activities.

## References

Woodward. S & Swinth. Y, (2002)  
Multisensory approach to handwriting remediation: Perceptions of school-based Occupational Therapists. *Am J Occup Ther*; 56: 305–312.