Background: Handwriting difficulties are increasingly reported in regular primary education,[1] negatively affecting academic performance and self-confidence.[2] Simultaneously, inclusive education has led to more heterogeneous classrooms, increasing pedagogical demands on teachers. Co-teaching models, involving educational support staff or pediatric therapists, are therefore increasingly implemented.[3] However, evidence on the effectiveness of structured co-teaching handwriting programs remains limited.

Objectives: This study examined whether the Dutch co-teaching handwriting program Samen Aan de Slag met Schrijven (SASS)[4] improves handwriting legibility in typically developing second-grade children in Belgium.

Methods: A non-randomized controlled trial was conducted in four second-grade classes from two regular primary schools (children n=58; 7.2–8.4 years). Within each school, one class was assigned the intervention and one acted as the control group. The intervention consisted of the six-week SASS program, delivered once weekly by pediatric physiotherapists as co-teachers. The co-teacher joined the classroom teacher during handwriting classes to provide additional instruction, with targeted support for a subgroup of 4–6 children identified using Quickscan screening[4] and the School Questionnaire for Teachers as having poorer handwriting. No co-teaching was provided in the control group. Handwriting legibility was assessed pre- and post-intervention using the Systematic Screening of Handwriting Difficulties-2 Flemish version (SOS-2-VL)[5], self-reported writing experience was evaluated using a Smileyometer. The Quickscan was also administered post-intervention Follow-up three months post-intervention was collected yet is still being analysed.

Results: SOS-2-VL scores improved significantly more in the intervention group than in the control group (mean SD change: +2.17 points vs. +2.00 points; p=0.01). This effect was primarily driven by substantial improvement in the subgroup receiving targeted support (pre=8.09; post=6.18; p<0.01). At baseline, handwriting legibility differed significantly between the subgroup and non-subgroup children in the intervention group (p=0.02). This difference was no longer present post-intervention, indicating that the subgroup caught up with their peers (p=0.48). Children in the intervention group showed improved Quickscan risk categorization (p=0.03), while no change was observed in the control group (p=0.48). Smileyometer scores indicated increased pain and fatigue in the control group (p=0.01), but not in the intervention group (p=0.41). Teachers reported higher writing motivation in the intervention group.

Conclusion: The SASS co-teaching program led to greater improvements in handwriting legibility than instruction without a co-teacher, particularly in children receiving targeted support who caught up with their peers. It also prevented increases in writing-related pain and fatigue and enhanced classroom-level engagement, supporting the added value of co-teaching handwriting interventions in primary education.

References:

1. Lopez, C., & Vaivre-Douret, L. (2023). Exploratory Investigation of Handwriting Disorders in School-Aged Children from First to Fifth Grade. *Children (Basel, Switzerland)*, *10*(9), 1512. https://doi.org/10.3390/children10091512
2. Engel, C., Lillie, K., Zurawski, S., & Travers, B. G. (2018). Curriculum-Based Handwriting Programs: A Systematic Review With Effect Sizes. *The American journal of occupational therapy : official publication of the American Occupational Therapy Association*, *72*(3), 7203205010p1–7203205010p8. https://doi.org/10.5014/ajot.2018.027110
3. Case-Smith, J., Holland, T., Lane, A., & White, S. (2012). Effect of a coteaching handwriting program for first graders: one-group pretest-posttest design. *The American journal of occupational therapy : official publication of the American Occupational Therapy Association*, *66*(4), 396–405. https://doi.org/10.5014/ajot.2012.004333
4. Van Bommel-Rutgers, I., De Vires, L., Van Hartingsveldt, M., & Overvelde, A. (2022). *SASS! Samen Aan de Slag met Schrijven*.
5. Van Waelvelde, H., Hellinckx, T., Peersman, W., & Smits-Engelsman, B. C. (2012). SOS: a screening instrument to identify children with handwriting impairments. *Physical & occupational therapy in pediatrics*, *32*(3), 306–319. https://doi.org/10.3109/01942638.2012.678971