

Systematic Review of Cursive Handwriting Interventions for Students With and Without Disabilities

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Introduction

Handwriting instruction has positive effects on students' literacy skills (Ray et al., 2022; Santangelo & Graham, 2016), including for students with disabilities (Datchuk, 2015).

- Letter and word recognition
- Spelling
- Text length and quality

Recently, several states have added cursive handwriting instruction into their standards:

- Iowa (Iowa Department of Education, 2024)
- Oklahoma (H.B. 3727, 2024)
- California (A.B. 446, 2023)

With ~70% of letters differing in overall shape and letter strokes if written in cursive or print (Graham, 1992), it is important to consider how cursive handwriting instruction may differ from print instruction.

There has been no previous systematic review of cursive handwriting interventions and their potential impacts on student literacy outcomes.

Research Questions:

1. How have researchers measured cursive handwriting?
2. What instructional techniques have researchers used to teach cursive handwriting?
3. What are effects of cursive handwriting on academic outcomes for students with and without disabilities?

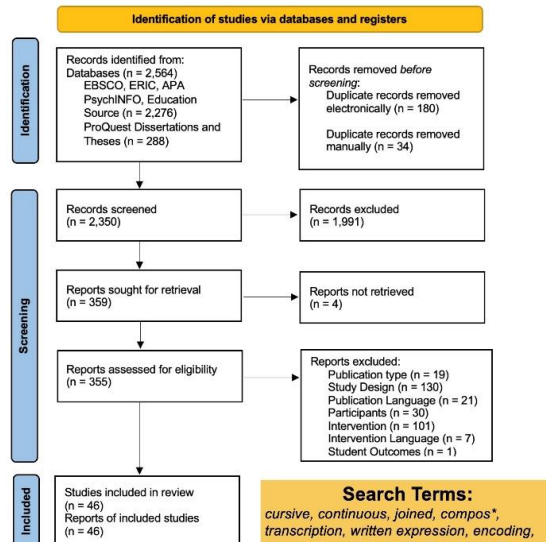
Discussion & Next Steps

- Studies report a wide variety of techniques to teach cursive handwriting, often in conjunction with other literacy skills (spelling, composing longer texts).
- More research is needed to determine which instructional techniques are the most effective for teaching cursive handwriting.
- More known regarding students in international countries, while less on students in U.S. and those with disabilities.

Next Steps:

1. Complete analysis and remaining search steps (e.g., forward, ancestral).
2. Launch CLIFTER (Cursive Letter Identification and Formation for Transcription and Early Reading) tool for teachers and caregivers.
3. Collect data on teachers' use of CLIFTER in schools, including student handwriting growth over time.

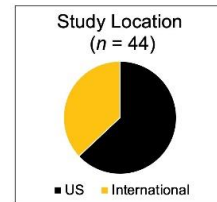
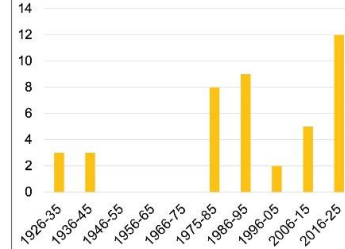
Method



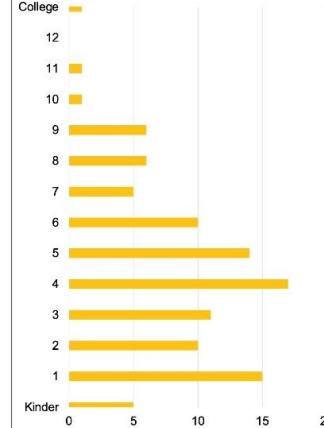
Inclusion Criteria:

1. Published in a peer-reviewed journal, book chapter, dissertation, thesis, conference presentation, or technical report
2. Published in English
3. Pre-K–college participants receiving cursive handwriting instruction (can be in conjunction with other instruction) forming alphabetic letters
4. Comparison group present (e.g., experimental, quasi-experimental, single-case, or students as own control study designs)
5. One or more participant-focused outcome, including: legibility, fluency, reading comprehension, writing quality, confidence, self-efficacy, and/or social validity measures

Distribution of Included Studies by Publication Year (n = 44)



Distribution of Grade Levels in Included Studies



Preliminary Results

Summary of Experimental and SCD Studies (n = 17)

Authors	n, Grade	Design	SWD	Duration	Independent Variables
Composing Letters					
Chandra et al (2020)	25, 1-2 nd grade	E	-	4 sessions, 15 min each	(a) Tutor robot (learning) (b) Tutor robot (non-learning)
Chung (1993)	2, 4 th grade	SCD	100%	5 sessions, 1 hour each	(a) Motor skills (b) Handwriting intervention (c) Handwriting homework
Eccelle et al (2021)	46, Kinder	E	-	5 sessions, length CD	(a) Spatial sonification while writing (b) Melody while writing (c) Silence while writing
Lockhart & Law (1994)	4, 4-6 th grade	SCD	100%	5 sessions, 1 hour each	(a) Trace with chalk (b) Trace with marker (c) Form letters with finger and rice (d) Copy letters on rough surface (e) Trace + copy on regular paper (f) Pencil/paper homework
Mabee (1988)	3, 3 rd grade	SCD	-	10-19 sessions, length CD	(a) Corrective feedback with repeated practice
Maguire (1992)	8, 3 rd grade	SCD	-	20 sessions, 10 min each	(a) Self-monitoring with visual cues + contingent reinforcement
Trap et al (1978)	12, 1 st grade	SCD	-	3-5 sessions/wk, 15 min each	(a) Corrective feedback with repeated practice + reinforcement
Vinter & Chartel (2021)	48, Kinder	E	-	4 sessions, length CD	(a) Motor training (b) Motor + visual training (c) Visual training (d) Control
Composing Letters + Words					
Graham et al (2000)	32, 1 st grade	E	44%	27 sessions, 15 min each	(a) Handwriting (b) Phonological awareness
Hurschler Lichtsteiner et al (2018)	175, 3 rd grade	E	19%	20 sessions, 15 min each	(a) Handwriting + spelling (b) Handwriting only (c) Spelling only (d) Reading fluency
Composing Letters, Words, + Connected Text					
Alves et al (2016)	55, 2 nd grade	E	-	40 sessions, 30 min each	(a) Handwriting + story instruction (b) Spelling + story instruction (c) Keyboarding + story instruction
Beers et al Study 1 (2018)	38, 4-9 th grade	E	100%	18 sessions, 2 hours each	(a) Handwriting (b) Spelling (c) Composing
Beers et al Study 2 (2018)	53, 4-9 th grade	E	72%	18 sessions, 2 hours each	(a) Handwriting (b) Spelling (c) Composing
Berninger et al (2015)	35, 4-9 th grade	E	100%	18 sessions, 2 hours each	(a) Handwriting (b) Spelling (c) Composing
Composing Connected Text					
Sweeney et al (1993)	5, 7-11 th grade	SCD	100%	5 sessions/wk, 25 min each	(a) Self-evaluation training (b) Self-evaluation with feedback (c) Independent self-evaluation
Level of Language Unknown					
Gerard & Junkala (1980)	145, 2-6 th grade	E	100%	25 sessions, 15 min each	(a) Task analysis instruction (b) State handwriting program (c) Teacher-directed handwriting instruction (d) No instruction
Shimel et al (2009)	50, 3 rd grade	E	-	30 sessions, 20 min each	(a) Handwriting Without Tears (b) Loops and Other Groups (c) Zaner-Bloser

Note. SWD = Students with disabilities; E = experimental; SCD = single case design; MB = multiple baseline; CD = cannot determine.

IRRC LIFTER



References

