



# HANDWRITING HEROES

## ESSA EVIDENCE PACKET

LXD RESEARCH  
HANDWRITING HEROES



Learning Experience Design (LXD)  
Research & Consulting  
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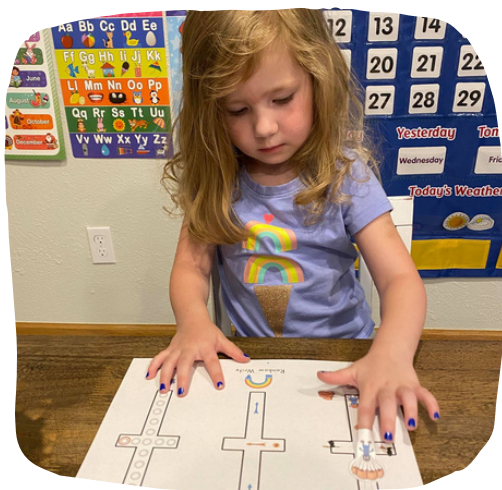
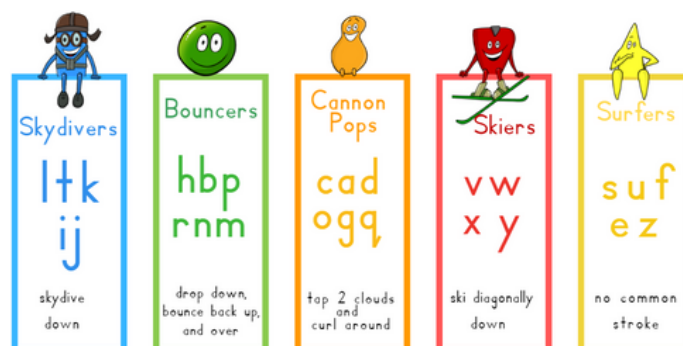




Handwriting Heroes is an engaging, fast-paced handwriting program designed for students in kindergarten to second grade.

The program is systematically structured and begins by introducing lowercase letters, which make up approximately 95% of the letters used in writing.

The lowercase letters are sorted into five groups by their common stroke, with one group taught each week. The repetition of the same movement from one letter to the next promotes rhythmic writing.



The program employs multisensory techniques that engage the student's auditory, visual, tactile, and kinesthetic senses. Letter formation is taught explicitly using animated stories that aid learning and memory retention.

# Logic Model for Handwriting Heroes (HH)

## PROBLEM STATEMENT

The traditional approach to handwriting instruction involves teaching one letter per week in both upper and lowercase forms. This time-consuming process takes nearly six months to complete. During this time, students are also expected to be writing text before fully mastering proper letter formation. As a result, they often resort to guessing how to form letters, leading to the development of inefficient patterns and bad habits that can be difficult to break.

### RESOURCES

*What resources are or could be available?*

- Teacher commitment to implementing a daily 15-minute block for handwriting instruction
- Assessment Materials:
  - Handwriting Screener
  - Weekly unit assessments
- Grade-Specific Materials:
  - Student Workbooks
  - Wall Cards
  - HH Fonts
  - HH writing paper
  - Desk Strips
- Digital tools with access to the internet
- Professional Learning
  - Self-paced course

### STRATEGIES & ACTIVITIES

*What will the activities, events, and such be?*

- Handwriting screener administered to all students
- Structured lesson plans and teacher scripts to ensure fidelity of implementation
- Multi-sensory instruction, including videos, songs, chants, and air writing
- Game-based learning that provides multiple practice opportunities
- Writing on erasable surfaces for low stakes retrieval practice
- Immediate feedback to aid learning
- Digital monitoring and assessments

### OUTPUTS

*What are the initial products of these activities?*

- Students receive focused handwriting time with guided practice and consistent skill reinforcement
- Students learn letters in meaningful clusters that facilitates rhythmic writing by repeating the same movement from one letter to the next
- Students develop strong associations between letter forms, names and sounds
- Students engage with various learning modalities to integrate visual and motor learning
- Teachers replay videos as often as needed to support motor learning and memory
- Students who demonstrate difficulty receive timely intervention

## SHORT-TERM AND INTERMEDIATE OUTCOMES

Students:

- learn to write all the lowercase letters with correct letter formation in five weeks
- increase their writing speed and fluency
- demonstrate increased engagement with writing in both lower and uppercase letters
- develop greater confidence in writing letters effectively and efficiently
- apply their new knowledge of letter formation during classroom writing tasks

Teachers:

- build their confidence and competence in providing explicit, systematic and sequential handwriting instruction
- recognize the importance of teaching handwriting
- dedicate time to teach handwriting with consistency and fidelity
- monitor and document student handwriting progress
- differentiate instruction for all learners

## LONG-TERM OUTCOMES AND IMPACTS

- Students maintain grade-level proficiency without additional intervention (reducing costs associated with extra services).
- Students confidently tackle both pragmatic and creative writing tasks into adulthood.
- Economic and social benefits of having strong writing skills, including reduced drop-out rate, and increased employment opportunities.
- Students achieve their desired goals, live to their full potential, and participate in our democratic governance.

**ASSUMPTIONS:** Administrators allow videos as an instructional tool in the early literacy classroom and provide the necessary technology. Teachers will be open to changing their approach to handwriting instruction. Students have the visual and motor skills to engage with the program materials effectively.

## REFERENCES

### Presentation of letters in meaningful clusters:

Hart, V. H., Fitzpatrick, P., & Cortesa, C. (2010). In-depth analysis of handwriting curriculum and instruction in four kindergarten classrooms. *Reading and Writing*, 23(6), 673-689. <https://doi.org/10.1007/s11145-009-9178-6>

Jones, C. D., Clark, S. K., & Reutzel, D. R. (2012). Enhancing alphabet knowledge instruction: Research implications and practical strategies for early childhood educators. *Early Childhood Education Journal*, 41(2). <https://doi.org/10.1007/s10643-012-0534-9>

### Integration of visual and motor learning:

Berninger & Richards (2009). Teaching writing. In V. W. Berninger & B. J. Wolf (Eds.), *Teaching students with dyslexia and dysgraphia: Lessons from teaching and science* (1st ed.). Brookes Publishing.

Berninger, V. W. (May/June 2012). Strengthening the mind's eye: The case for continued handwriting instruction in the 21st century. *Principal*, 91(5), 28-31.

### Multisensory learning experiences:

Wolf, B. J. (2011). Teaching handwriting. In J. R. Birsch (Ed.), *Multisensory teaching of basic language skills* (3rd ed., pp. 179-204). Brookes Publishing.

### Importance of daily, sequential handwriting practice:

Graham, S. (Winter 2009-2010). Want to improve children's writing? Don't neglect their handwriting. *American Educator*, 33(4), 20-40.

Moats, L. C. (2005). Teaching handwriting and spelling. *Language essentials for teachers of reading and spelling: Module 9* (2nd ed., pp. 29-35). Sopris West Educational Services.

### Value of direct instruction for alphabet learning:

Invernizzi, M., & Buckrop, J. (2018). Reconceptualizing alphabet learning and instruction. In C. M. Cassano & S. M. Dougherty (Eds.), *Pivotal research in early literacy: Foundational studies and current practices* (2nd ed., pp. 85-110). Guilford Publications.



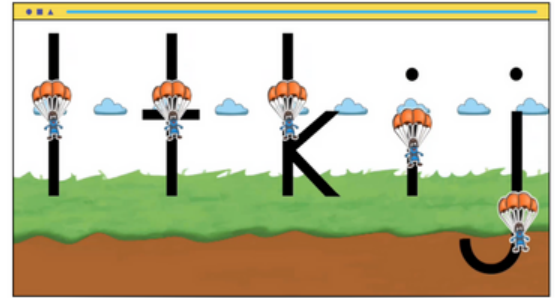
# Handwriting Heroes® Case Study: Grade 1, Garrett County, MD

Prepared by Destiny Riley and Rachel Schechter, PhD



## Study Summary

Covering two cohorts of first graders in a rural district, Handwriting Heroes provided benchmark data for their letter formation assessment as the basis for our case study. Their innovative approach to teaching handwriting integrates storytelling and animated videos. After completing the five-week program, students demonstrated a mastery of an average of 18 additional letters, which was quantified with a very high effect size of 3.19.



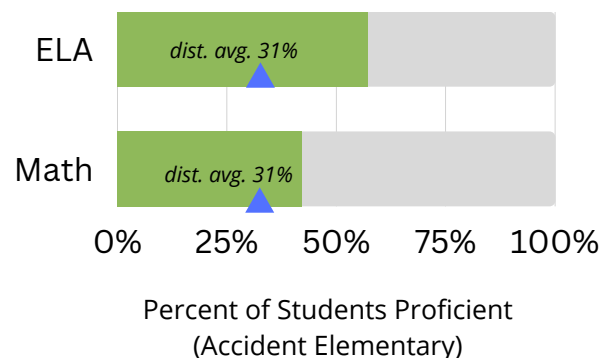
## Product Description

Handwriting Heroes is an engaging, fast-paced handwriting program designed for students in kindergarten to second grade. The program is systematically structured and begins by introducing lowercase letters, which make up approximately 98% of the letters used in writing. The letters are sorted into five groups based on their movement strokes. The program employs multisensory techniques that engage the student's auditory, visual, tactile, and kinesthetic senses. Letter formation is taught explicitly using animated stories that aid learning and memory retention.

## School Description

Accident Elementary School is a very small, rural school located in Accident, Maryland, and is a part of Garrett County Public Schools. Serving grades PK3 through 5, the school has a total of 218 students enrolled, 28 of whom are in 1st grade. For our case study, nearly all of the first-grade students (N=27) were sampled. Compared to other schools in the district, Accident Elementary School is performing above average. However, there is still scope for improvement, as 43% of students were not reading proficiently by third grade.

**Figure 1: School Test Results**



Source: [nces.ed.gov](https://nces.ed.gov)



## Study Description

During most of the school year in 2021-2022, the teacher did not use a formal handwriting curriculum and felt that her students needed more structured and explicit instruction. In April 2022, the teacher started using Handwriting Heroes and administered the Letter Formation assessment. After completing the six-week curriculum in May, the post-test was given. The following year, the teacher used the program right at the beginning of the year, and administered the pretest in September 2022. The posttest was given in October 2023 to assess progress over the course of the curriculum.

The teacher used Handwriting Heroes to focus on lowercase letters, and those are the results reported in this study. Handwriting Heroes also incorporates songs, sign language, air writing, and tracing activities, offering multiple learning routes for students.



## Key Findings

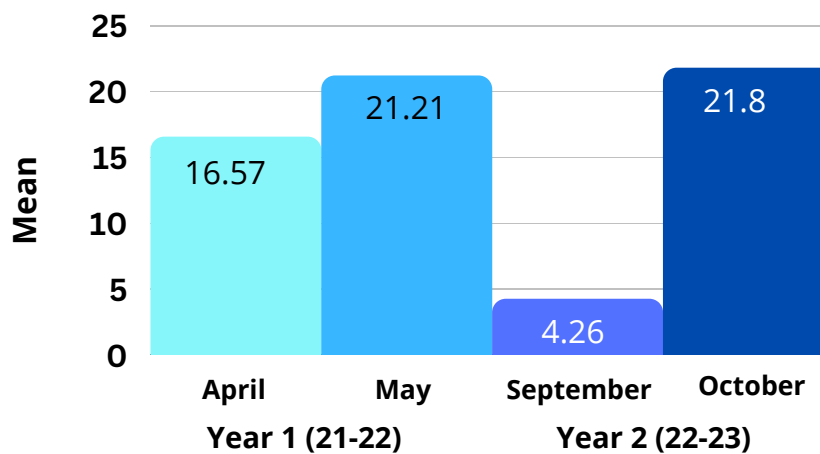
A key lesson from Year 1 was the need to start with Handwriting Heroes at the start of the school year in Year 2. Figure 3 shows Year 1 data with a pretest in April and a posttest in May. In Year 2, the program began in September, and progress was evaluated with a posttest in October.

**Year 1:** The teacher in our study recognized the need for a different approach teaching handwriting that would benefit all her students. In Year 1, while most students knew at least half of their letters in April, Handwriting Heroes significantly improved learning outcomes, with an average accuracy growth of 17%. **Half of the students in Year 1 increased their accuracy by 30% or more.** Notably, some students who were only able to write eight letters correctly in April produced over twenty letters by the end of the school year.

**Year 2:** The teacher introduced Handwriting Heroes right from the beginning of the school year, using the pretest to assess the students' initial accuracy scores. As a result, **the group mastered 22 letters in just five weeks.** Remarkably, one student progressed from writing one letter correctly to mastering all twenty-six by the end of the program.

Early literacy skills such as letter formation and recognition are crucial for students' reading and writing development. The growth demonstrated in both implementation examples provides robust evidence for teachers seeking a tool to support their students' literacy journeys.

**Figure 3: Average number of letters correctly written by students after 6 weeks**



**Table 1: Letter Formation, Overall Scores**

Year	Month	Mean	Standard Deviation	N	Effect Size
Year 1	Pre-Test - April	16.57	5.99	14	Cohen's d = 0.67
	Posttest - May	21.21	7.75	14	
Year 2	Pre-Test - September	4.26	3.61	13	Cohen's d = 3.19
	Posttest - October	21.8	6.86	13	

## Research Limitations

Limitations of this case study include sample size, timing, and demographics. The study focused solely on first-grade students, limiting our ability to analyze the program's effectiveness across all resource levels. Additionally, the first cohort's pre-test was conducted in April after a mid-year curriculum change, which may have impacted results when compared to the second group of students who began Handwriting Heroes at the beginning of the year. Finally, the study took place in a distant rural district, with the majority of students represented belonging to a single racial group (white) and only 9.6% of students coming from households with an income below the poverty line.



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This case study was independently analyzed and written by Learning Experience Design Research, a third-party education research firm.



Dear Education Leader,

The Handwriting Heroes team would like to express our gratitude for your continued use of our handwriting curriculum. Knowing that there are many resource options available to you, we are delighted that you have chosen Handwriting Heroes to support your educators and students.

We are excited to share our upcoming goal of assessing the efficacy of the Handwriting Heroes program and its impact on academic outcomes, specifically reading and writing abilities. To achieve this, we plan to conduct a research study that will concentrate on the program's effectiveness. The findings of this study will help us understand the impact of Handwriting Heroes and improve it to better serve schools like yours.

We would like to offer you the opportunity to participate in this study. Participants will receive free online access for the duration of the study, staff support and training, and feedback on your school's performance with suggestions for improvement.

Please get in touch to learn more details about the study and the terms of involvement. We hope you'll take advantage of this unique opportunity to help us shape the future of Handwriting Heroes. If you're interested or have questions, please contact me at [cheryl@handwritingheroes.org](mailto:cheryl@handwritingheroes.org) to arrange a meeting.

Thanks in advance for considering our invitation.

Sincerely,

A handwritten signature in black ink that reads "Cheryl Bregman".



**Cheryl Bregman**

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