



WRiTE BRAiN BOOKS' K-12 curricula and products are **Research-Based**

RESEARCH ARTiCLES

Using Picture Books to Engage Middle School Students

[LINK](#) 

- Patricia Murphy

- This article discusses how wordless picture books engage middle school students who may seem uninterested on the surface, but really, they become curious and creative.
 - "Adolescents need outlets to share their feelings and emotions about certain topics. Picture books provide this necessary outlet."
-

Enhancing English Learners' Language Development Using Wordless Picture Books - Belinda Louie and Jarek Sierschynski

[LINK](#) 

- "Children need to have extended opportunities to get their ideas across to the listeners, even if their grammar has errors or their vocabulary is limited. Making their perspectives comprehensible to others encourages ELs to process their language more deeply, finding the linguistic forms to best match their intended messages. For example, when ELs are placed in a small group or in pairs to solve a problem or to complete a task, the collaboration creates a context for meaningful extended language use (Louie and Sierschynski 104)."
-

The Effects of Handwriting Experience On Functional Brain Development In Pre-Literate Children

[LINK](#) 

- Karin Harman James and Laura E Engelhardt

- "Pre-literate, five-year old children printed, typed, or traced letters and shapes, then were shown images of these stimuli while undergoing functional MRI scanning. A previously documented 'reading circuit' was recruited during letter perception only after handwriting— not after typing or tracing experience. These findings demonstrate that handwriting is important for the early recruitment in letter processing of brain regions known to underlie successful reading. Handwriting therefore may facilitate reading acquisition in young children."

Stimulating Critical Thinking With Wordless Books

LINK 

- Gail G. Smith

- “Using wordless picture books provides an engaging context for verbal interaction and for demonstration of the written component of communication.”
-

Handwriting in the 21st Century? Research Shows Why Handwriting Belongs in Today's Classroom

LINK 

- Saperstein Associates

- “When handwriting becomes automatic, students can better focus on the planning and thought organization that is required for effective composition.”
-

Exploring Wordless Picture Books - Frank Serafini

LINK 

This article discusses how wordless books are wonderful visual narratives that keep readers exploring the details of the illustrations over the course of numerous readings. Readers of wordless books benefit by learning to:

- Give voice to the visual narrative by participating in the story sequence
 - Interpret characters' thoughts, feelings, and emotions without textual support for confirming these ideas
 - Tolerate ambiguity and accept that not everything may be answered or understood
 - Recognize that there are a range of reading paths to explore through the visual narrative
 - Elaborate on hypotheses about what is happening in the narrative sequence (Serafini 25)
-

Wordless books: No-Risk Tools for Inclusive Middle-Grade Classrooms - Judith K. Cassady

LINK 

- “Wordless books enhance creativity, vocabulary, and language development for readers of all ages, at all stages of cognitive development, and in all content areas.”

Handwriting Still Has Its Place in Schools

-The Knox School

LINK 

- "Virginia Berninger (2006) conducted a study that followed children in grades two through five. She demonstrated that printing and handwriting are associated with separate brain patterns and produce different results to those gained by typing. Text written by hand was consistently longer in length (more words) than that produced on a keyboard. In these longer texts, more ideas were expressed. Brain scans of the oldest subjects suggested that the connection between writing and idea generation was even more complex. When asked to come up with ideas for a composition, those with better handwriting exhibited greater neural activation in areas of the brain associated with working memory and also showed higher levels of brain activation in areas associated with reading and writing."

A Comparison of Digital and Handwritten Signatures

LINK 

- David Fillingham

Handwriting is much more beneficial when compared to digital signatures due to the greater security handwritten signatures provide.

- "... although digital signatures will likely revolutionize electronic commerce, handwritten signatures will almost certainly continue to be used for some purposes into the foreseeable future."
- "Handwritten signatures can be verified in perpetuity, whereas digital signatures will likely become unverifiable after ten years or so due to data processing equipment and cryptographic standards obsolescence, certificate expiration, and other factors."
- "Handwritten signatures are inherently secure against repudiation (again, to the extent of the skill of the document examiner), whereas digital signatures require third party time-stamping to augment their non-repudiation security service"

Inside the Picture, Outside the Frame: Semiotics and the Reading of Wordless Picture Books

LINK 

- Patricia A. Crawford & Daniel D. Hade. JRCE

This article discusses how when young readers use wordless picture books they construct meaning through the use of prior knowledge, knowledge and experiences, attention to intertextual cues, multiple perspective-taking, reliance upon story language and rituals, and the implementation of active playful behaviors as a part of the reading process.

Story Development Using Wordless Picture Books

LINK 

- Colleen Reese

- "... students learn to write stories, include complete sentences, to expand their ideas to better describe the pictures, and produce meaningful stories. They learn to summarize pages with multiple pictures, at the same time making sure the sentences match the action shown in the pictures. Linking words were used to make the story cohesive, and sentences were begun in different ways. Students learn to use quotation marks for conversations, commas for items in a series, exclamation points for emphasis, ellipses to tell the reader that the thought was not yet complete, and correct verb tenses. Many children personalize their stories by giving names to the characters and places. Thus the children were able to build their reading and writing skills and strategies to ultimately produce a unique book (Colleen 173)."

At the Time of Writing: Digital Media, Gesture, and Handwriting - Maria Angel and Anna Gibbs

LINK 

The difference between writing and typing is the movement of the body. Although typing allows for movement and physical activity, that sort of movement can distract the reflexivity that writing allows oneself.

- "Handwriting, after all, as Hensher notes 'is what registers our individuality, and the mark which our culture has made on us. It has been seen as the unknowing key to our souls and our innermost nature. It has been regarded as a sign of our health as a society, of our intelligence, and as an object of simplicity, grace, fantasy and beauty in its own right.'"

China's Language Input System in the Digital Age Affects Children's Reading Development

LINK 

-Li Hai Tan, Min Xu, Chun Qi Chang, and Wai Ting Siok

- "On the other hand, increasing reliance on electronic modes over handwriting for communications may impact children's reading skill acquisition."
- "This pattern of findings indicates that children's Chinese character-reading performance significantly decreases with the utilization of the pinyin input method and e-tools in general."

Computer- vs. Paper-Based Tasks: Are They Equivalent?

LINK 

-Jan M. Noyesa and Kate J. Garland

This academic article reviews the efficiency of using digital and paper media, respectively.

- "These early comparisons of computer- and paper-based tasks generally favored paper for better performance according to the metrics of speed, accuracy and comprehension."
- "These effects were attributed to an increase in cognitive demands, that is, the computer task was more tiring and more stressful than the paper-based task and this led to 'a greater mobilization of both perceptual and executive cognitive resources' being invested."

AND MORE RESEARCH ARTICLES

A Kindergartner's Emergent Strategy Use During Wordless Picture Book Reading

- Judith Lysaker and Elizabeth Hopper

[LINK](#) 

Using Wordless Picture Books to Support Emergent

Literacy - Mary Renck Jalongo, with Denise Dragich, Natalie K. Conrad, and Ann Zhang

[LINK](#) 

Narrative Competence and Internal State Language of Children with Asperger Syndrome and ADHD

- Anna Lena Rumpf, Inge Kamp-Becker, Katja Becker, Christina Kauschke

[LINK](#) 

Young Children's Readings of Wordless Picture Books: What's 'Self' Got To Do With It?

- Judith T. Lysaker

[LINK](#) 

Sample Student Paper: The Lost Art of Penmanship

- Penn State, Thesis Article

[LINK](#) 

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FOR FURTHER READING

Handwriting's Relevance in a Digital World

LINK 

- Anthony Cahalan

Handwriting is essential to education because it boosts creativity and imagination, and eases learning of reading.

- "Contemporary education and psychology research suggests handwriting skills help children to read by 'writing down' what they are learning in terms of spelling and sentence construction, similar to note-taking in other subject areas."
- "Writing in The New Yorker online, Maria Konnikova describes recent research in France and the USA that shows handwriting not only assists children to read more effectively but also helps them to create, imagine and recall information."

For More Effective Studying, Take Notes With Pen and Paper - Allison Eck

LINK 

- "While digital writing helps collect ideas faster and stay more organized, handwriting helps with memory and understanding. According to Pam Mueller and Daniel Oppenheimer of Princeton University and UCLA Los Angeles respectively, students who write out their notes by hand actually learn more than those who type their notes on laptops. Students who used laptops cranked out more words than hand-writers did, but the hand-writers ended up with a stronger conceptual understanding across the board."

What Will You Do with a Wordless Book?

LINK 

- Erlene Bishop Killeen

- "With wordless books, children who are struggling with reading text are freed when the visual expression is art. Children who excel in letters can be challenged when the text is missing. All children can expand their imagination and improve their verbal abilities by supplying appropriate text to a story displayed without words. Vocabulary words can be more easily learned and used, and dialogue can be created by even the youngest. Our picture book collections provide numerous resources and are readily accessible for teachers, students, and parents."

How Do Electronics Negatively Affect Children?

LINK 

- Melly Parker

This article discusses the negative effects of electronic media on children. It states that use of electronics can cause social isolation, bullying, and have physical effects.

- "...Since children who use electronics often multitask between activities and devices, for example, electronic use may help some children become more likely to multitask. While multitasking seems like a time saver, the same study indicates that it actually takes more time and the task being accomplished isn't done as well."

Continued on next page 

The Art of Writing by Hand is Still Relevant in the 21st Century - Dr. Shen-Li Lee

LINK 

So here it is... handwriting is beneficial because: it helps children learn to read

- It enhances brain development and changes the way children learn
- It activates more areas of the brain (compared to typing)
- It makes children smarter

"In the late 1980s, Haas found, to her surprise, that students seemed to do a better job of planning their writing by hand than by keyboard... "it's the human body that intervenes between the tool and the brain. Central to that intervention are our hands, through which so many everyday interactions flow."

Research: Handwriting Spurs Brain Activity, Typing Doesn't - Julie Lawrence

LINK 

- "Scientists compared the neuro-image scans of preschoolers who were learning to write by practicing printing their letters and those who were just doing verbal repetition."
- "After four weeks of training, the kids who practiced writing by hand showed brain activation similar to an adult's", said James, the study's lead researcher. "The benefits of writing by hand also included improved letter recognition, which is the No. 1 predictor of reading ability at age 5."

Do Students Learn Better by Typing on a Keyboard or Writing with a Pen? - Patricia Ann Wade, Ph.D.

LINK 

- "Students' compositions are better when they are handwritten than when they are typed. For example, 2nd, 4th, and 6th grade school children with limited proficiency in both handwriting and typing completed classroom assignments both ways. The handwritten assignments were longer, included more complete sentences and a greater number of ideas, and were completed in less time than the typed assignments."

PARCC Scores Lower for Students Who Took Exams on Computers

LINK 

- "Students who took the 2014-15 PARCC exams via computer tended to score lower than those who took the exams with paper and pencil—a revelation that prompts questions about the validity of the test results and poses potentially big problems for state and district leaders."

UW prof: Handwriting Engages the Mind

LINK 

- Deborah Bach

- "Writing is the way we learn what we're thinking," said Berninger, who studies the effect of handwriting on the human brain. "The handwriting, the sequencing of the strokes, engages the thinking part of the mind."
- "Handwriting requires the production of a letter form, stroke by stroke," Berninger said in the CBS interview. "The act of producing something supports perception. So we need to output in order to improve our ability to process what we input from the environment."

The Science of Handwriting - Scientific American Mind, October, 2013 (pp. 54-62) - Brandon Keim

LINK 

Handwriting shows developmental strides in when young children are taught from a very young age versus typing.

- "I can't shake the feeling that my thinking is different more measured, more rich when mediated by hand rather than machine."
- "Pens and pencils do seem to engage our brain in a unique manner, especially as children."
- "The importance of the hand-mind link is seen in developing children, for whom the ability to manipulate physical objects tracks uncannily with the acquisition of speech."

Good handwriting and Good Grades: FIU Researcher

LINK 

Finds New Link - Jean-Paul Renaud

Studies at FIU have shown that children who develop good handwriting often excel academically.

- "In research funded by the Children's Trust and soon to be published in the Journal of Early Childhood Education and Development, Dinehart discovered that 4-year-olds who demonstrate strong handwriting skills are more likely to excel academically in elementary school."
- "We talk about reading, we talk about math, but no one talks about handwriting," Dinehart said. "It's not even a subject area in many classrooms anymore. We don't ask kids to spend time on their handwriting, when in fact, the research is clear that kids who have greater ease in writing have better academic skills in 2nd grade in both reading and math."

The Brain-Based Benefits of Writing for Math and Science Learning -Judy Willis, MD



When handwritten activities are assigned in math and science courses, students are more able to understand the subjects due to the greater understanding that comes when concepts are written out.

- “Indeed, in the past two decades, neuroscience and cognitive science research have provided increasing evidence that correlates creativity with academic, social, and emotional intelligence. Writing can help the brain to develop the logical functions required for successful math and science learning.”
- “When it comes to math and science, writing brings more than literacy and communication advantages. The practice of writing can enhance the brain’s intake, processing, retaining, and retrieving of information.”
- “Through writing, students can increase their comfort with and success in understanding complex material, unfamiliar concepts, and subject-specific vocabulary.”

No Handwriting on the Wall - Mary Ann Parker O’Toole



This article was written by a concerned parent who finds that the use of technology in classrooms is stunting children’s neural growth and instead feels that handwriting needs to be implemented in schools again.

- In an interview, neurologist Frank R. Wilson, author of *The Hand: How it's Use Shapes the Brain, Language, and Human Culture*, states, “Although the repetitive drills that accompany handwriting lessons seem outdated, such physical instruction will help students to succeed...these activities stimulate brain activity, lead to increased language fluency, and aid in the development of important knowledge.” “Handwriting has also been surprisingly relevant technologically. What has Steve Jobs always cited as a formative experience? A course in calligraphy at Reed College.”



MORE ARTICLES:

- **What's Lost as Handwriting Fades - Maria Konnikova**
<http://www.nytimes.com/2014/06/03/science/whats-lost-as-handwriting-fades.html?ref=science&r=1>
- **How Handwriting Trains the Brain: Forming Letters Is Key to Learning, Memory, Ideas- Gwendolyn Vound**
<http://online.wsj.com/news/articles/SB10001424052748704631504575531932754922518>
- **Memory Medic: How to Improve Everyday Memory - William Klemm, D.V.M., Ph.D.**
<http://www.psychologytoday.com/blog/memory-medic/201303/what-learning-cursive-does-your-brain>
- **Kids And Screen Time: What Does The Research Say?- Juana Summers**
<http://www.npr.org/blogs/ed/2014/08/28/343735856/kids-and-screen-time-what-does-the-research-say>
- **The Pen May Be Mightier than the Keyboard- University of Washington**
<http://www.sciencedaily.com/releases/2009/09/090916173332.htm>
- **Cursive Not Forgotten - Catherine Martin**
http://www.columbiatribune.com/news/education/cursive-not-forgotten/article_93bcc93d-0da3-5b25-94ef-e4eaa343f009.html
- **How Writing by Hand Makes Kids Smarter - The WEEK Staff**
<http://theweek.com/article/index/207846/how-writing-by-hand-makes-kids-smarter>
- **The Many Health Perks of Good Handwriting - Julie Deardorff**
<http://www.latimes.com/health/boostershots/sc-health-0615-child-health-handwriti20110615,0,360921.story#axzz2xxnceEZs>
- **Digital Media Has Growing Impact on Kids' Health - Patricia**
<http://www.publichealthnewswire.org/?p=3444>
- **Cursive Writing is a Cultural Tradition Worth Preserving - Jimmy Bryant**
<http://www.nytimes.com/roomfordebate/2013/04/30/should-schools-require-children-to-learn-cursive/cursive-handwriting-is-a-cultural-tradition-worth-preserving>
- **In the Classroom: Using Wordless Picture Books with Disabled Readers - Frank Ho**
<https://writebrainbooks.com/pdfs/Using-wordless-picture-books-with-disabled-readers.pdf>

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