

We can't say if touchscreens are impacting children's handwriting—in fact, it may be quite the opposite

6 March 2018, by Mellissa Prunty



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Parents the world over are concerned that touchscreen and tablet technology is [negatively impacting](#) children's handwriting. But while some say that technology overuse will impact developing dexterity and handwriting skills, the fact is that there has been no research to date which systematically examines the relationship between technology use, hand strength and handwriting production.

Even in an increasingly digital age, there is no doubt that [handwriting](#) remains a crucial childhood skill. It is the main medium for writing in UK schools and most other countries, too. There are very few classrooms (if any) in the UK that use typing as their main mode of writing.

There is an abundance of research suggesting that writing by hand helps [spelling ability](#) in young [children](#) and enables a deeper level of processing compared to typing for learners of different ages. A [2014 study](#), for example, found that university

students could recall more information when taking notes by hand than typing. Researchers attributed this to the fact that writers are not able to handwrite as quickly as they can type, so they are forced to process and selectively decide on the notes to take.

Getting a grip

One of the most contentious issues in handwriting is how one should hold a pen. For years, the dynamic tripod grip – pen held between thumb, first and middle finger – has been considered to be the most efficient or "correct" way to hold a pen. But while Britain's national curriculum encourages a dynamic tripod in writing development, it is not mandatory.



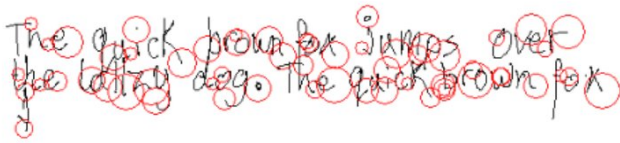
10-year-old boy with dyspraxia: many pauses (red circles) within words due to poor & incorrect letter formation.

Studies have found that the dynamic tripod grip [does not offer an advantage](#) over [other common alternatives](#). The biomechanics associated with a tripod grip may make writing less of an effort, but other grips do not seem to hinder handwriting performance in any way. However, if a child has a grip that is clearly not functional – for example, they wrap their hand around the pencil in a [palmar grasp](#) – or they are experiencing pain, then this would

warrant input.

As yet it is unclear whether using touchscreens impacts the fine [motor skills](#) – or ability to manipulate objects skillfully – young children require to grip a pen. In fact, [one study](#) which looked specifically at scrolling a screen and its relationship with developmental milestones found no evidence to support a negative association between age of first touchscreen use and early milestones (language as well as fine and gross motor skills). Instead, the authors noted that the earlier a child interacted with a touchscreen device, the sooner they demonstrated achievement of fine motor milestones.

This finding may be due to increased experimentation by the child using fine motor/manual control. But as this is not proven, this research could certainly be a starting point to study the impact of technology use on pen [grip](#) and early handwriting performance in more detail.



10-year-old boy with dyslexia: pauses occur within words due to spelling difficulties.

Handwriting difficulties

Not everyone finds handwriting an easy or natural thing to do. It is a complex skill considered to be "[language by hand](#)" – it is not just a motor skill but is closely linked to language, too. So, regardless of whether technology does or does not affect motor skills, a child may still experience handwriting difficulties.

In the early stages of writing development (five to nine years old) the amount and quality of writing (grammar, punctuation, organisation, coherence) a child can produce are strongly predicted by fine

motor skill and spelling ability. Both handwriting skill and spelling are important in early writing. But this combination of motor and language demands means that trying to ascertain what has caused a handwriting difficulty can be very tricky.

In clinics and classrooms, we often observe handwriting that is illegible, slow, or painful to produce. But the non-motor skill reasons for this can be different in each child. For example, children with developmental coordination disorder ("dyspraxia") [produce fewer words](#) per minute compared to other children of the same age. But they are able to move a pen just as quickly as their peers despite the motor difficulties that come with dyspraxia.



10-year-old typically developing boy: pauses occur between words only indicative of developed writing.

Children with dyspraxia have a tendency to pause while writing which has been attributed to poor letter formation impacting on the amount and [quality of their text](#). This "pausing phenomenon" has also been found in [children with dyslexia](#). Though, unlike dyspraxia, children with dyslexia pause within misspelled words, and produce less text of poorer quality.

It is important that children are comprehensively assessed in order to understand the reasons behind any handwriting related issue, and knowledge from research is used to underpin decisions made in the classroom/clinic or at home.

What we do know is that practice and experience is key to acquiring any [motor](#) skill. Children should be engaging in activities that help them to develop their fine and [gross motor skills](#) both at home and in school. For parents and teachers who may be

concerned about a child's handwriting, the [National Handwriting Association](#) has many different resources that can help.

This article was originally published on [The Conversation](#). Read the [original article](#).

Provided by The Conversation

APA citation: We can't say if touchscreens are impacting children's handwriting—in fact, it may be quite the opposite (2018, March 6) retrieved 20 September 2019 from <https://phys.org/news/2018-03-touchscreens-impacting-children-handwritingin-fact.html>

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