

THE RELEVANCE OF HANDWRITING IN A TECH-DRIVEN ACADEMIA

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Abstract: *Modern technology has gained enormous reach over more traditional analogic practices in all fields due to the desire of individuals to ease their work. However, teachers and researchers have overlooked the consequences of such a transition. For instance, in some academic institutions, laptop usage has decreased the need to submit handwritten assignments. Moreover, most class assignments must now be turned in online and hard copy texts have been replaced with digital copies which are easier to access on library databases. Transitioning to technology as a critical tool and medium for academia has created some issues for instructors who must integrate the use of this technology into their curriculum. There are many more harmful effects that a technology driven academia can cause when individuals cannot distinguish between the use of technology for pleasure and studying. Although modern technology offers various ways to learn and motivate, traditional practices that have proven effective for centuries should not be excluded outright.*

Keywords: handwriting, technology, education, young adults

1. Introduction

In recent years, numerous studies have shown that by incorporating technology alongside interactive learning environments is essential to motivating students. However, the increasing use of technology in schools has led to a decline in the use of handwriting among students of all ages. Some countries have decided to reintroduce handwriting in schools, such as Ontario, Canada. Initially, handwriting was dropped in 2006 because learning how to type was considered more important. Beginning in 2023, Ontario schools are mandating that handwriting be reintroduced as early as Grade 3 [1]. James and Engelhardt suggest, that the skill of handwriting helps facilitate letter perception and is important for letter processing in the brain [2]. In the same year, Sweden also reintroduced handwriting and the use of physical books.

Numerous studies have examined the effectiveness of technology usage versus handwriting among students from various angles. Notable examples include Bonneton-Botte et al.'s Teaching and Rehabilitation of Handwriting for Children in the Digital Age: Issues and Challenges, and Muller and Oppenheimer's The Pen is Mightier than the Keyboard: Advantages of Longhand Over Laptop Note Taking. An unavoidable negligence becomes apparent when considering the use of technology in education against the actual academic background in the educational system. Apparently, technology was implemented while teachers were still learning how to use it. There was no time to consider the long-term effects of its use or to weigh the benefits against the drawbacks. Therefore, technology has had a significant impact on students' academic and personal lives. Some children still require parental

supervision because they lack the motivation to complete all their tasks correctly, yet parents are finding it challenging to monitor their children's work as most of it is done on the computer.

Students have grown dependent on technology, relying on the Internet to complete their tasks instead of actively seeking solutions from other sources, such as physical texts. If students did not have access to technology, they would be encouraged to come up with their ideas and put them down on paper while writing by hand. Nowadays, students' lack of imagination and patience is evident.

2. The Study

The study analyzed perceptions of technology through the perspectives of students in their twenties. The conclusion was that handwriting was seen as more effective than technology, based on auditory and visual memory vectors. For some students, auditory memory works better than visual memory, as can be seen in some of the accounts brought forward in the study: "I find that listening to something is a lot easier to learn than writing about it," or "handwriting is important for certain tasks that cannot be performed by AI and require handwriting."

The switch from handwriting to typing was made too quickly both in North America and Europe. According to student interviews taken from different colleges and universities, writing and note taking is still used. Modern technology is still a new practice to which not even young adults are used to. One student believes that he would like modern technology better "if he had been using it ever since his early years of life." Many students write at home when doing their assignments, even if they only use technology at school. Findings have also shown that handwriting represents an individual's personality and should be practiced as a mark of one's identity.

This traditional practice drew the attention of researchers from various fields, including neuroscientists, psychologists, and

educational therapists. According to Yang et al., "the association between personality traits and handwriting is instantiated at both regional and brain-networking levels, extending our understanding of the nature of individual differences in handwriting and opening up the possibility of characterizing a person's personality by analyzing brain patterns during the dynamic handwriting process ('neurographology') [3]. Neuropsychologist researchers have concluded that "adults and children who were made to write by hand showed increased neuronal activity in the central and parietal regions of the brain in the theta wave range, which is crucial for memory and processing novel data." Klimesch et al. (1994) also "suggested enhanced hippocampus activity during handwriting, which is the organ associated with memory and learning. [...] Results depict that writing and tracing activate the brain more as compared to typing." [4] All in all, the essential connections created between movement and the brain result in developing skills, such as summarizing, synthesizing, or writing essays, that involve cognition and visual representation of words or concepts, as most important in written texts.

Handwriting can also be seen as an outlet for expressing one's emotions. One university student stated that "[He] love[s] letters. [He] write[s] letters for [his] friends, and [he] only use[s] writing for this." Some other students referred to handwriting as a means of "keeping a close relationship." Students can also identify their papers by handwriting, whereas typed papers need to be read to identify the author. The article titled "No Longer Swearing by Cursive Writing" was published in the Los Angeles Times. In it, Jouvent explains that "with handwriting, we come closer to the intimacy of the author" [5]. This explanation clarifies how an author's originality flows through their handwriting. Bryan Saner adds, "the words we use are the symbolic code that approximately represents the thinking of our hand and

muscle. [...] handwriting as movement creates the thought that it inscribes.” [6]

Students feel in control when taking notes on paper and do not like to depend on the functionality of a digital device. Typing makes people feel insecure since information can be easily lost or deleted, whereas written information can feel more permanent. One student finds that “it is more practical to take one’s notebook and just begin to write than wait for the laptop to start. If you write with your hand, you know that it will be there, in your notebook; it will never disappear. If you choose the laptop, the information can be lost, or deleted. It takes a lot of time to save the document and think about the folder where you should save it.”

Handwriting difficulties among students should be identified as early as elementary school. Bonneton-Botté et al. discuss evaluation tests for both evaluators and children; some examples are the “Concise Evaluation Scale for Children’s Handwriting or Brave Handwriting Kinder (BHK) The Minnesota Handwriting Test, Evaluation Tool of Children’s Handwriting (ETCH), the Hebrew Handwriting Evaluation (HHE), the Detailed Assessment of Speed of Handwriting (DASH), and the Handwriting Legibility Scale (HLS).” [7] All teachers should be instructed to be able to identify difficulties such as motor, cognitive, or dyslexia. For example, the Ministry of Education in Quebec, Canada, issues teaching brevets only for teachers who have completed courses such as “Integrating students with disabilities” or “The Educational System and the Teaching Profession.” If such tests were administered by teachers who identify impairments in children, educational specialists could devise a rehabilitation schedule to work with the students in need. Researchers such as Bonneton-Botté speak about the existence of “rehabilitation programs based on individualized assessment and remediation.” [8] As a result, teaching students various strategies to aid in their writing process may be beneficial.

Addressing handwriting difficulties can also alleviate other learning challenges.

Taking notes by hand helps students enhance their vocabulary and become more successful over time. In their study, *The Pen is Mightier than the Keyboard: Advantages of Longhand Over Laptop Note-Taking*, (Muller et al.), conclude that “whereas taking more notes can be beneficial, laptop note-takers’ tendency to transcribe lectures verbatim rather than processing information and reframing it in their own words is detrimental to learning [...] On multiple college campuses, using both immediate and delayed testing across several content areas, we found that participants using laptops were more inclined to take verbatim notes than participants who wrote longhand, thus hurting learning” [9]. Elementary and high school students experience reading difficulties while reading the assigned texts, mainly because of unknown words. In such a situation, some important reading strategies are annotating the text and clarifying the questions the reader might have. Among other benefits, such a practice would enlarge the vocabulary. Effective notetaking during courses implies the skill of synthesizing information by mapping out key concepts and utilizing reading strategies developed through experience with handwriting.

Since 2023, more countries have decided to reintroduce handwriting, be it cursive or script. This is the case in California, United States. Elizabeth Heubeck thinks that “[t]he irony is that this push for cursive comes at a time when technological advances like laptops and other electronic devices have made keyboard-operated text communication quick, efficient, and widely available to K-12 students. An increasing number of states California is only the most recent are attempting to reintroduce the loopy, artistic form of cursive writing into curriculum standards” [10]. Another example is Ontario, Canada, where handwriting was “dropped in 2006 because it was believed keyboarding skills were

more important, old-school handwriting will start in Grade 3 as mandated by the province” [11].

According to the Education Ministry, research shows that “fluent handwriting provides students with more opportunities to express their thinking.” [12] In addition to North America, in the same year, 2023, handwriting was reintroduced in Sweden as well. Selwyn states that “the Swedish government does have a valid point when saying that there is no evidence for technology improving learning. Still, I think that’s because there is no straightforward evidence of what works with technology.” “Technology is just one part of a really complex network of factors in education.” [13] “Sweden has chosen to reintroduce conventional teaching methods, focusing on printed books, quiet reading, and handwriting practice, while reducing the emphasis on tablets and online research in its schools. This change comes in response to growing concerns among politicians and experts regarding the potential decline in essential skills caused by the country’s hyper-digitalized approach to education[...].” [14].

3. Conclusion

The progressive adoption and introduction of technology in schools have not left room for enough reflection and integration of technology in pedagogical planning. Technology deprives children, teens, and young adults of the opportunity to strive to look for information in books, write drafts, and, ultimately, final versions of their writings. Today’s students can use technology to complete academic assignments more quickly than those who learned in traditional environments. Students taking notes in notebooks are beneficial for teachers and parents as it allows them to keep track of student’s participation in their academic activities. Most of the time, parents do not have

access to their children’s accounts to see submitted and unsubmitted assignments. Notebooks are still an excellent way to control and monitor students’ learning progress and involvement.

Reassessing teaching approaches, considering the current context and the relevance of using technology versus traditional methods, is absolutely essential. The instructor’s pedagogical judgment is of utmost importance and dictates the ingredients of his/her recipe, namely the lesson. Despite the modernized technological academic organization in educational institutions, the modern teaching approaches are not always constructive. Researchers, such as Bonneton-Botté, question the use of technology in some teaching contexts. Some teachers dictate informative texts for the whole class during their classes, which is not a teaching approach. Besides, some of them often deliver speeches without focusing on students’ involvement in activities. The latter lack self-confidence and end up memorizing information just to be prepared for evaluations. Not only does handwriting keep students active during and outside the class, but it also ensures the development of reading skills, enriching their vocabulary. In conclusion, the use of technology provides variation in teaching approaches and motivates students. However, valuable conventional practices, such as handwriting, should not be disregarded either. In addition to researchers, both teachers and students stated that the lack of handwriting practice has produced a gap in kids’ learning processes. The constant practice of handwriting in schools could even decrease the illiteracy percentage in the community where the educational system has brought handwriting back into the classroom.

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