

BYRAM HILLS CENTRAL SCHOOL DISTRICT
ARMONK, NEW YORK

Author: Kim Smith & Mary Staudt

Title of Project: *The effects of computer vs. hand-written journaling in a sixth grade language arts class on overall quality and quantity of writing*

Year: 2015-2016

School/Grade: HCC Grade 6 ELA

SUMMARY OF *INVESTIGATORS OF PRACTICE* ACTION RESEARCH PROJECT

Context:

We have been teaching the sixth grade Language Arts Literature curriculum collaboratively for the past twelve years in a high-performing, suburban school district. There are two teams of students in 6th grade (Team A and B). This year, we each teach approximately 98 students divided into four sections.

Our research question grew out of concerns over the amount of screen time students spend on electronic devices. We wondered if so much screen time has a negative or positive affect on student writing and thinking. Now that each student has access his or her own chromebook, we questioned whether or not typing our daily “do now” journaling responses would have any impact on students’ writing quality and quantity versus handwriting the responses.

In the literature curriculum we try to include journaling about the class readings as part of our routine. When reading a class novel, students typically respond in writing to a “Do Now” prompt three to four times per week. The writing prompts are related to the prior night’s reading and are aligned to the common core standards. The purpose of these daily writing activities is to increase writing fluency, give practice in supporting ideas with textual evidence, and to think about the previous night’s reading in an analytical way. Students are usually given five minutes to respond to the question. Then they share their responses with a partner, and then some are shared with the whole group. Some example prompts from this year include:

- How does Mildred Taylor develop the point of view, using Cassie as the narrator of the story? (*Roll of Thunder, Hear My Cry*)
- How has Jonas changed since the beginning of the novel? Give 2-3 examples or details from the text to support your answer. (*The Giver*)
- What is the theme of “The Necklace”?
- How does an author’s culture or geographic location affect his or her perspective? Use evidence from *The Lost Garden* and “Saying Yes” to support your response.

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Action Plan:

Our research question was as follows:

1. *What are the effects of using a chromebook journal versus a traditional handwritten journal on students' daily writing quality and volume?*

We initially chose to study this issue because each student now has access to a chromebook and as teachers of writing, we encourage students to write daily. Would typing responses to our daily writing prompts versus handwriting them benefit students in any way, or would it make little to no difference? We wondered if we would see better quality and more volume of writing with a certain method. Ultimately, we want students to be aware of strengths and weaknesses in their own learning which would enable them to make good choices in the future.

Background Research:

Little research has been done to date on the effects of student writing by hand versus typing on keyboards. The Princeton University study is the most cited work which shows that for college students "taking notes by hand is better than taking notes on a laptop for remembering conceptual information over the long term."¹ Furthermore, according to *The Guardian*, although computers now dominate our lives and most people now type far more than they hand write in the workplace, and cursive writing has been deleted from the Common Core Standards, there are important cognitive benefits to handwriting. Researchers found that children aged three to five were better at learning to recognize letters and words when they wrote them versus typing them on a computer. The study was repeated with adults, teaching them Bengali or Tamil characters, with the same results.² Their findings suggest that there are benefits to the kinesthetic movement of letter formation in memory and recognition of letters and words.

There were several pieces of data we collected during this research process. The literature teacher of each team chose a method and compared results.

In the beginning of the year, Team A students were asked to type their responses, while Team B students hand-wrote. These journals were collected and we analyzed the quality and the quantity of the writing at this point with an analysis of responses. We collected the work of a cross-section of students based on previous ELA state scores. We were curious if we would notice a difference in the long run with students at each scoring range (4,3,2,1). We scored both the volume of writing (word count) and also the quality of the writing (based on the 2-point short response ELA rubric).

Team A:

About halfway through the year, this specific selection of students were asked to switch methods (typing students began to handwrite journal responses). The purpose was to analyze and compare the writing for the second half of the year to the first half of the year to see if there were any noticeable trends. Was the writing quality improving overall (based upon the ELA rubric)? Did

¹ "Take Notes by Hand for Better Long-Term Comprehension ..." 2014. 7 Jun. 2016

<<http://www.psychologicalscience.org/index.php/news/releases/take-notes-by-hand-for-better-long-term-comprehension.html>>

² "Handwriting vs typing: is the pen still mightier than the ... - The Guardian." 2016. 7 Jun. 2016

<<https://www.theguardian.com/science/2014/dec/16/cognitive-benefits-handwriting-decline-typing>>

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the volume increase or decrease based on the method of response (word count)?

Team B:

About half-way through the year, students were allowed to choose which method they preferred to write. About 50% of students chose to switch to typed journals on their chromebooks, the other half stayed with their paper notebook journals.

After the mid-year switch, two more journal responses were analyzed for word count and quality based on the 2 point ELA rubric.

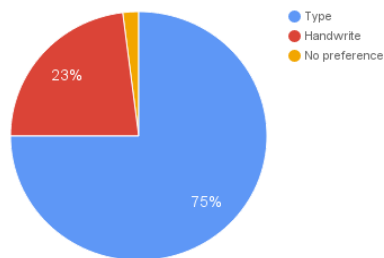
In addition, both teams conducted two surveys with students. One was in November and the follow-up in June. The intent of the November survey was to assess student attitudes about typing and handwriting. Most of these questions were about student preferences and the reasons for those preferences. For example, we asked, “When you are given a Do Now writing prompt on the smartboard, how would you prefer to respond?”

Results:

Team A

In November, 75% of students said that they preferred to type their responses. Only 2% said they preferred to hand-write, and 23% said they had no preference. When asked why, students cited reasons such as, “I am more organized with a computer” or “My hand-writing is poor” or “I write more on my chromebook.” On this same survey, 67% of students claimed that their writing was better on a chromebook overall. 53% of students thought they wrote more on the computer, while 28% said it didn’t matter.

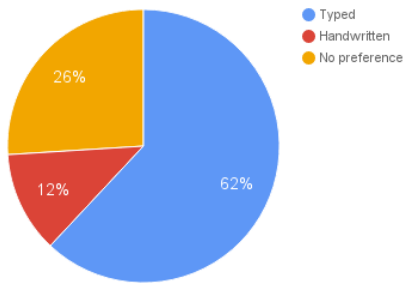
Do you prefer to type or handwrite journal responses? (November)



In June, 62% of students said they still preferred to type their responses while 26% said they had no preference. Most claimed “It is easier for me to type than hand-write” and “I am more organized on the computer.” When asked if the quality of their writing was better on the chromebook, 53% said it was, while 37% said it did not matter and 10% said the quality was better on paper.

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Do you prefer to type or handwrite your journal responses? (June)

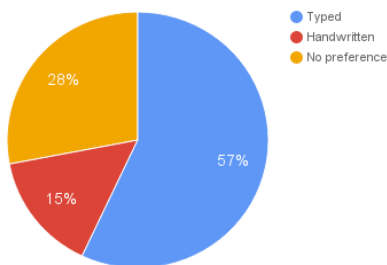


In terms of the quality of the writing, for the average to high achieving student (ELA score 3 or 4), there was little or no difference between typing or hand-written responses. With both methods, these students seemed to write about as much (word count) and the quality was equally as good (based upon the rubric.) However, for the struggling learners (ELA score 1 or 2) it seems that the volume and quality of the writing improved over time significantly. For example, ELA level 1 students averaged 25 words per response in November to 62 words per response in June. Also, the average score on the response increased. Again, it is difficult to determine if this is because of the method of response, or simply because they were becoming better writers. What is clear is the student survey. A number of students changed their preferred method after they tried both and were able to determine what worked best for them. A significant number of special education students decided they preferred to handwrite as it was more efficient and that their lack of typing skills slowed them down.

Team B

In November, 57% of students said they would prefer to type their journal responses on a chromebook, 15% said they prefer handwritten journals, and 28% said they did not care. Of those who preferred typing, 88% said the main reason was that it was easier and faster to type than to handwrite. Other reasons were it is easier to be organized and find my journal and it helps with spelling and grammar (42% and 47% respectively). Of the students who prefer handwriting, the most common reasons were “I feel like I use the computer too much” (40%), “I am faster at writing than typing” (35%) and “It is easier to share and discuss my writing with my peers” (35%).

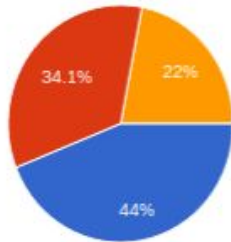
Do you prefer to type or handwrite your journal responses? (November)



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When you are given a Do Now writing prompt on the smartboard, how would you prefer to respond?

(June)



A. Type on a chromebook.	40	44%
B. Hand write in a journal/notebook.	31	34.1%
C. I don't care.	20	22%

It is interesting that by June more of the students preferred handwriting or did not care when responding to Do Now questions (short writing prompts). Students felt overall that they preferred to type longer pieces (essays) on a chromebook versus write them (68.5% in November, 71.4% in June). In both November and June, 40-42% of the students felt the quality of their writing was better on a chromebook, while about the same number felt that typing or handwriting did not matter in terms of the quality of their writing. Approximately 20% in Nov and 17% in June felt the quality of their writing was better when handwriting. In November and June, more students (47% and 51% respectively) felt the quantity of their writing was better on a chromebook.

Both Teams

It is worthy to note that more students on Team A (chromebook journals first half of year) preferred typing to handwriting both in November and June. Team B students (handwritten journals first half of year) also had a majority of students favoring typed journals, but showed a higher percentage of students who preferred handwriting, and more of them chose this method in June after they had the opportunity to use both methods. It appears how the journaling was introduced to the students did affect how they chose to pursue the activity (either typing or handwriting).

In comparing the data for short response journaling questions (2 point ELA rubric), there does not seem to be a significant difference in quantity and quality of the writing among students who typed and students who handwrote. However, for the longer responses, there was a difference in writing quantity among lower performing students (ELA score 1 or 2). When the responses required these students to write more, students with computers did write more in many cases as compared to their hand-writing counterparts.

Lastly, in June the students were asked to rate their experience journaling and if the prompts helped them this year as a reader and a writer on a scale of 1 (did not like them and they did not help) to 5 (I thought they were great and helpful). 87% of the students rated the journaling and prompts a 4 or 5. Some comments were:

"Journaling this year was great. I liked the chromebooks because it was much faster and didn't hurt your fingers as much as writing with a pencil. I do like writing on paper though because my brain has a lot more thinking to do."

"I liked writing in my journal. It really helped me understand what we were talking about. I think that

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journal writing can help you grasp the main ideas in a book or article.”

“This year we have written and responded to many prompts in our journals. I thought that this was fun because then you got to understand the book or poem better. I also liked sharing them at the end because then you can hear what other peoples opinions are.”

“I thought journaling was pretty helpful. It helped me understand some big pictures in the books. I also liked being able to hear different opinions on topics. It helped create a good conversation with my peers. Overall, I think the journaling was pretty helpful.”

“Writing in my journal helped me understand sections of books that I didn't really understand. It also made me think deeper about what had happened in the books that we read. Lastly writing in my journal is a good way to practice writing on a test.”

We were always impressed with the seriousness and effort students put into this activity, even though the journals were not graded, per se. It was clear from their participation and work that the students were engaged and clearly saw the benefit of the activity, even though they did not receive credit for their grade.

Implications:

It is difficult to determine from the collected journals whether typing or handwriting ultimately had an impact on quality and quantity of student writing. There are other factors that have an impact on student writing. In general, students have become better writers after a year of daily practice and writing instruction, so it is difficult to measure if one method is responsible for that. However, using the student surveys, it is clear that some students changed their minds about which method worked best for them. What they thought in November, didn't always stay the consistent for the whole year. It was important to let students try both methods to see what worked best.

Moving forward we will ask students to try both methods in order to determine what works best for them as an individual learner. We have learned as teachers we must be flexible and not allow our own bias for one method over another cloud our judgement on what is best for an individual student. It is clear that while the majority of students prefer to type in this digital age, some still prefer a paper and pencil. Students must become comfortable with both methods.