The Evolution of Note-Taking: Using a SmartPen as a College Student

Maddi Kartcheske

In her article, Maddie Kartcheske studies the conscious and unconscious decisions she's made while using a SmartPen. By analyzing her relationship with socialization and antecedent knowledge, she discovers the pros and cons of operating on autopilot while she takes notes.

Prologue

I'm one of two undergraduate interns in the ISU Writing Program, and one of the things I love most about my job is my coworker, Colleen. She's smart, funny, and has a work ethic like no other. We both have packed schedules, and the only days that we're in the office at the same time are Fridays. One particularly cold Friday in February, Colleen was sitting on the little blue couch in our office that faces my desk. She updated me on our to-do lists as I was researching for this article. Looking up smart devices like the pen I intended to write about, I stumbled across a particularly ridiculous-sounding one, and I asked my coworker if she'd heard of a "smart refrigerator." She said she'd seen a commercial for one, but didn't know much about them. We raced to Google to see what the fuss was about, and Colleen fell in love. She listed all the pros of having a refrigerator that can take pictures of the interior of the fridge, share grocery lists with associated family members, and even play movies.

Even with her extensive explanation, I couldn't fathom how this filled a need that our other devices don't already fill. Instead of using the fridge to

share grocery lists, I wondered why you couldn't just text your family. Instead of playing movies *on your fridge*, why couldn't you just bring your laptop into the kitchen? We went back and forth for way too long before she pointed to my pencil cup on my desk, full of multi-colored pens and highlighters. "Why do you need a SmartPen if you have all of those, then?" she asked.

I didn't have an answer. She was right.

Yes, like the fridge, the SmartPen is cool. I can come up with many ways to validate my purchase, but that doesn't change the fact that I spent hours upon hours working and saving up for a machine that I essentially already had (analog pens and paper). Is it worth the investment? How is this different from the fridge?

In this article, I hope to look at the ways in which a SmartPen, something seemingly trivial and unnecessary, radically changed the frameworks within which I view my notes. First, I'll explain what the SmartPen is at its most basic. Then, I'll explain how it physically altered the way I take notes. Finally, I'll discuss my largest challenge with the pen, developing new habits in order to *use* the pen, and explore reasons these difficulties may persist.

Why a SmartPen?

Image 1: My SmartPen.

The Neo Smartpen N2 is a machine shaped like a pen that holds a ballpoint pen ink cartridge and tracks the ink as it moves along a special paper using a built-in camera. The first time I used the pen, I felt like I was living in the future; it seamlessly transfers the notes I take on a dotted paper to a smart device like a tablet or smart phone.

Using **CHAT (cultural-historical activity theory)** to analyze the beginning of my writing process (which, for me, is the selection of materials with which to write), I find that I tend to rely heavily on **production**, the tools and processes I need to produce a piece of writing, and **ecology**, the external forces (typically out of my control) that affect my writing. So, in search of the best tools to write, I saved up for an entire summer in 2017 to purchase the NeoSmart Pen N2, and I fell in love with it instantly. Of all the pens I found online, it's the sleekest and easiest for a student's on-the-go

use. I saw that some pens would need an external sensor to track each pen stroke on *any* paper, but the idea of juggling notes and a sensor in class with every page turn made me nervous. By purchasing a notebook with the appropriate kind of paper, the pen simply records the strokes as you write. This way, I don't have to lug all my notebooks around if and when I need to study or write a paper. No adjustments per page, per notebook, or per day. This was incredibly important to me, because I wanted the shift in my tool usage to be as seamless as possible. I wanted to write with my new pen in the same way that I would write with any other pen. I've had years to practice taking notes and to develop the note-taking strategies that work best for me; because of this **antecedent knowledge**, I didn't want to have to start over and re-learn how to take notes. This pen was perfect for that goal. I could hold it in any direction as I wrote with very few inconsistencies in my digital copy. The only ecological problem I had to worry about was when I reached the bottom of a page: when the camera falls off the paper, so does its recording. Though the ink may still write on the page, the camera can't pick it up. This may seem obvious, but since I was used to being able to write until I ran out of physical paper, it took me a few months to become used to this new stipulation and to turn the page when I still had a few lines left.

Image 2: Close-up of the SmartPen camera.

It may seem intimidating that the pen needs special paper to write on, but the notebooks are relatively inexpensive and, instead of having any paper as a tool, special notebooks simply became part of producing my text, just as a special pen did. This involved a slight shift in my production, but not an invasive one. I purchased the college-style notebooks for my classes, which come in a packs of three. The way the camera on the back of the pen can track pen strokes is through tiny dots and lines printed on every page, as you can see in Image 3. This allows for storage of my notes on another device.

Image 3: Close-up of special paper.

I saved up for a new smart device to use as the storage for my pen, an iPad, so I wouldn't have to bog down my phone with the data. This way, all of my digitized notebooks are in one convenient spot, but it doesn't impede on the functionality of my cell phone. Thankfully, my summer job covered these costs, but I think the ability to have it on a phone makes this pen extremely user-friendly and accessible to a large variety of people, which makes it successful in the realm of ecology. On the app, after you've written and synced your notes, you can transcribe your handwriting into text. I'm generally a person who enjoys writing things out on paper before typing them and editing, but it takes a *long* time to go through those steps. From an ecology standpoint, the transcription feature saves me time when re-typing before the editing phase with an accuracy I didn't expect. Even with my terrible handwriting, the app deciphers it well! It's not something I've used many times, but it comes in handy. Other features include a recording option to capture audio using the microphone on your device, different digital ink colors for post-class editing or color-coding, the option to email your notes to others, and more. These were simply bonuses to my pen and things I hope to use in the future, but I haven't added them to my regularly-used list of tools yet.

The final thing I had to worry about, the biggest thing, was battery life. This was the only part of my new note-taking that strayed particularly far from the way I take notes with an "analog" pen. Previously, when I would get up for classes, I just had to throw my notebooks and a pencil case in my bag and go. It's extremely convenient and is a lot more forgiving of forgetfulness. While engaging with a new writing situation, I'm hyper-aware of ecology. The pen has to be charged; the tablet has to be charged; I have to remember to take the pen *and* the tablet off the charger before going to class; I have to turn off the pen after each class so I don't waste battery; I can't have a ton of games and apps on my tablet, which will drain its power (etc., etc., etc…). I've had many class periods where I'm watching the pen's battery life dip below 20%, and I spend more energy on monitoring the numbers than the actual notes I'm taking.

Overall, It has been a surprisingly easy transition, but I find more and more unique qualities as I use the pen. As I alluded to before, its functionality and gadgets are interesting in and of themselves, but I'm consistently intrigued by how my notes have changed, visually.

Computer Files on Paper

I've always been an avid and involved note-taker. My first *Grassroots* article that I wrote in English 101 (Composition as Critical Inquiry) was on note-

taking and doodles, since I carry my planner around everywhere to write down important events or thoughts throughout the day. I love to write, and I love to make pages "my own." In that first article, I was emphatic: note-taking is a form of self-expression and a way of breaking out of an institutionalized space. Though I believe it's important to be creative in every aspect of writing, if I let it go too far, my notes start looking like … well, this:
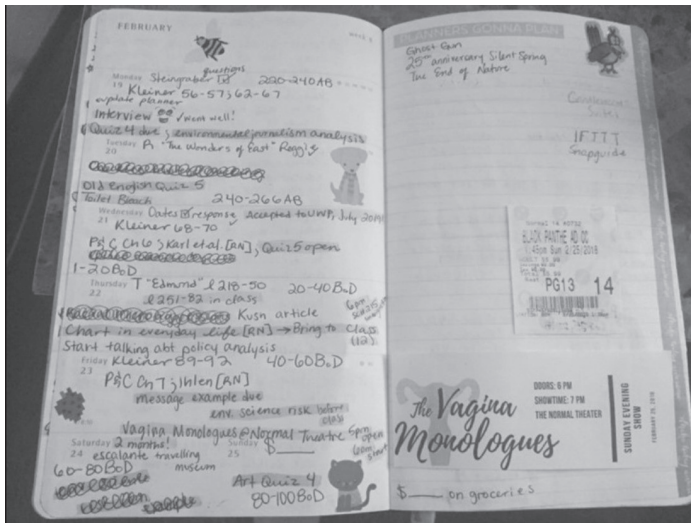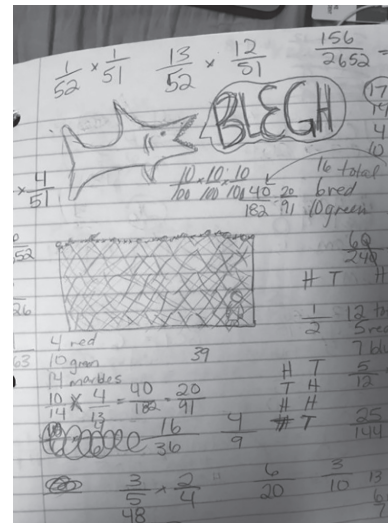

Image 4: My planner, junior year.

Image 5: Math class, freshman year.

Fun, but chaotic, almost to the point of illegible. Before I introduced a SmartPen into my list of tools, taking notes was the same as writing for fun, meaning it's an extension of myself. And I'm not the only one who feels this way. As Nathan Schmidt says in *The March of the Llamas: Or, How to Be an Effective Note-Taker,* "Doodling introduces disorganization into an otherwise organized system, a sort of mathematical chaos into a neat 1:1 ratio of representation to finished product" (103). But even being a staunch, anti-institutional note-taker, I realized that my notes still started to *look* different. As we can see above, my margins are crammed, the fun drawings or stickers take up valuable page space. Looking at the pages afterwards, your eye is more drawn to the "fun" part than the "valuable" part.

When it comes to my planner in Image 4, I've intentionally constructed it in this way. When I look at a page of boring, black-and-white text, unless I absolutely *have* to use it, I get too bored and overwhelmed. When it comes to studying for a test or reading for a class, there are direct repercussions for not reading the material. In a planner, however, I've been **socialized** to think that a huge amount of plain text means I'll have to suffer through a task to get to my end goal. To put socialization in other words, through my
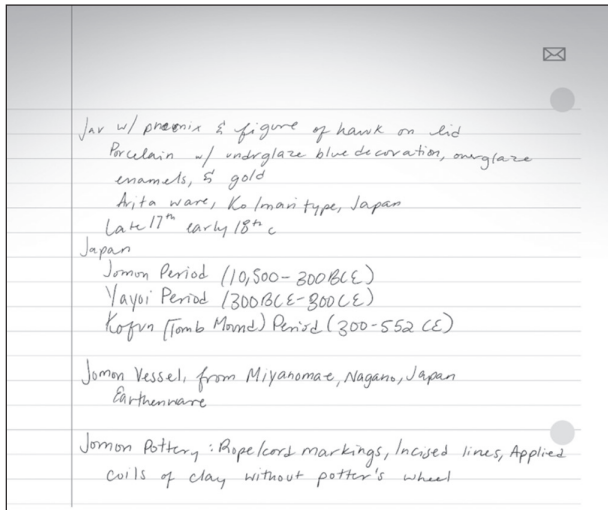
Jar w/ phoenix & figure of hawk on lid
Porcelain w/ underglaze blue decoration, overglaze
enamels, & gold
Arita ware, Ko/mari type, Japan
Late 17th early 18th c
Japan
Jomon Period (10,500 - 300 BCE)
Yayoi Period (300 BCE - 800 CE)
Kofun (Tomb Mound) Period (300 - 552 CE)

Jomon Vessel from Miyanomae, Nagano, Japan
Earthenware

Jomon Pottery : Rope/cord markings, Incised lines, Applied
coils of clay without potter's wheel

Image 6: Art history notes taken with my SmartPen.

Beliefs and practices in Japan
Shinto
Animistic belief and ancestor worship
Kami – spirit or local deitins in nature
Clans built shrines for their guardian kami
Priests made offerings of grain and fruit

Buddhism from China via Korea
Sponsored by ruling elite
Creation of statues for worship
Building of temples
Imperial patronage and the diffusion of Buddhism

Ise Shrine
Main Shrine, dedicated to the sun goddess Amaterasu
Wooden construction with thatched roof
Granary inspired
Rebuilt every 20 years, next reconstruction in 2033

Horyu-ji [ji means temple in Japanese]
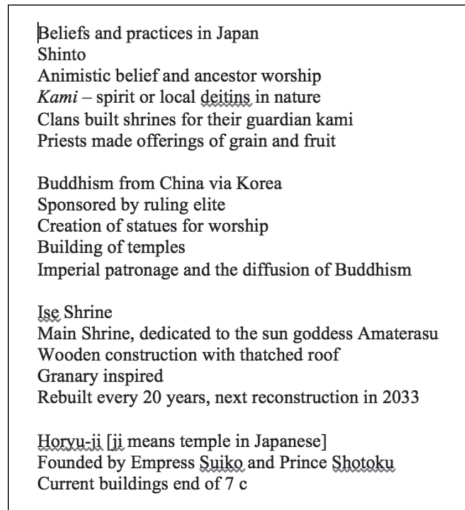Founded by Empress Suiko and Prince Shotoku
Current buildings end of 7 c

Image 7: Art history notes taken on my computer (when I forgot my pen at home).

experience as a college student and as a writer, I've associated boring blocks of text with a negative reaction. Since there isn't a direct repercussion for not using my planner, I had to come up with new ways to ensure I use it. In my case, I had to make sure it was fun and exciting to look at. Sure, the stickers, colors, and mementos are distracting, but I only have to look at the planner for a few minutes per day to figure out homework and daily tasks.

When it comes to studying, as we can see in Images 4 and 5, legibility and clarity are extremely important. If every page has a fun picture on it, and every time I turn the page my eye is initially drawn to it, I'm wasting the initial moments of each page-turn on something unrelated to schoolwork. It's far easier to get distracted as I study this way because I've literally and physically worked in a distraction once per page.

Now, we can look at how I take notes with the SmartPen in Image 6, notes I took in my general education Art History class. It's shockingly similar to the typed notes in Image 7, notes taken in the same class on a day where I forgot my pen, but not my laptop. We may be tempted to assume that I consciously made the decision to make my notes "less distracting," but I only noticed the change in my note-taking style after beginning research on the article. Instead of deciding to change how I take notes, the use of my tablet showed me ways to make this writing situation more useful to me. To break this down, I'll return to socialization. When we think about using a file on a computer, we assume that all the information we will need will be *in* that file. For example, if we look at an infographic, we assume that all we will need to know will be right there in the image. We can contrast that with a book, which might take hundreds of pages to get to "the point." I think I was

socialized to view my notes in the same way. When I used an analog notebook and pen, I viewed the notebook as a whole and prepared to flip through the entire book while studying. The book was a compilation of the entire course, and I expected to sift through material in order to get to the point. In this framework, part of the course includes my drawings and the extension of myself. I am a person within the space, and, thus, I am a factor within my notes. Now, each page is its own "file" on my tablet. I began actively making sure that each page had vital information on it, sometimes even leaving the last five lines of a page blank in order to start a new topic or bullet point on the next "file." As I take notes with the pen, it automatically syncs to the tablet in real-time, and so I'm constantly aware of the end product.

Since I began subconsciously associating my writing activity with its end product, the digital medium on my tablet, the lens through which I viewed my activity changed. Doodles and extra information became inappropriate for the writing situation I'd created: a digital space on a physical medium. Studying became faster, because I knew that each "fact" or piece of information that I needed would be on a single page that I could flip through easily on my tablet. I spent less time distracted and more time focused on the topic at hand. Taking notes in class became separate from taking notes in my planner, and it's kept me organized. A subconscious differentiation between the two activities has radicalized the way I approach school.

When Socialization and Antecedent Knowledge Go Too Far

But, of course, it isn't too good to be true. I relied heavily on both my antecedent knowledge of note-taking across platforms and the way I was socialized to behave in those platforms, but these two things lead to me giving up on the pen for the second half of my fall semester here.

General education classes are notorious for meaningless, tedious notes. And while I *loved* the discussion aspect of my Politics 101 class, I dreaded the copious amounts of notes from a PowerPoint that we took each class period. As I was writing about Rousseau's opinion on Society and General Will, something unthinkable happened: my pen ran out of ink. Of course, if this had been any other pen, I would've been prepared. That comes with the territory of a physical medium. Only, I'd associated my pen with a *digital* medium, and both the pen itself and my tablet had a battery charge over 90%! I wasn't prepared with more ink cartridges because I was so concerned with the digital framework of the pen. As luck would have it, the pen actually *does* still work without ink—apparently the camera follows the ballpoint ink cartridge more so than the actual black marks on the page—so I managed
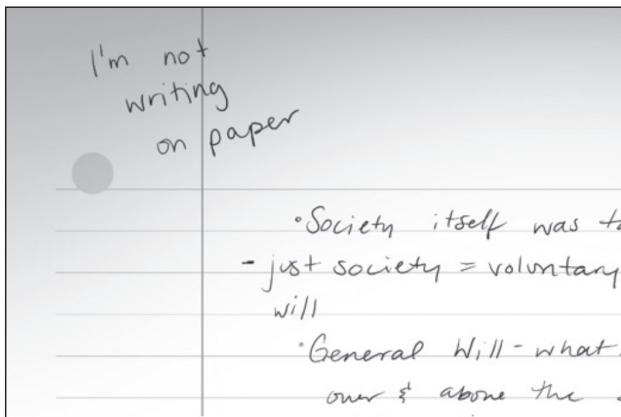
Image 9: When the ink ran out …

to write Image 9 in the corner of my page without ever physically writing on my notebook.

But in class, that doesn't help me very much. Not only would I not be able to read what I was writing without looking at my tablet, but how insane would I look to my neighbor, writing on an entirely blank piece of paper? I finished the rest of that day's work in pencil and, as soon as I got home, I ordered the appropriate inkwell size and color. For the next week or so, I wrote in cheap "analog" pen on my special paper. Since I could sync words to my tablet without ink by writing using an empty cartridge, I'd planned on writing over my analog words in order to stay on track with the course. But, since I was relying on my antecedent knowledge, I never did. Part of note-taking, for me, is that I don't have to look at them again until test-time. But when the box of inkwells arrived at my apartment, I *still* wrote with analog pens. I promised myself to start up again as soon as I traced over all my notes, but the pen sat on my desk, charging and collecting dust for months.

It would've been easy to just re-load my SmartPen, to just pick up as soon as I'd received the package, but I'd re-socialized my notes to the point that it made me *uncomfortable* to start up again. Just as my note pages became files, the copies on my tablet became a kind of archive, and I had a *mountain* of work ahead of me. Instead of getting part of the archive done, instead of picking up as soon as I could, I fell back into old habits and into my antecedent knowledge, my comfort zone, of analog note-taking that I'd developed for over a decade. If the archive wasn't complete, it wasn't worth doing at all, and I could continue taking notes in a more familiar writing situation. I created arbitrary borders for my writing: my pages are files, my notebooks are archives, and my writing situation exists within a semester. Once the fall semester ended, I had no problem picking up the pen again! The period in which I had failed had "ended," and I could start new.

But, as Shane A. Wood writes in his article on failure in the writing classroom, "If writing is a process, then failing is a large part of succeeding in that process" (66). It has been important for me to understand that, sometimes, something will be incomplete. Sometimes, it will be comfortable to shrink back into your comfort zone, even if it means leaving an expensive piece of technology at home instead of letting it *help* you. Sometimes, it will

be scary to admit defeat. But that doesn't mean it's impossible or that it isn't *worthwhile* to keep progressing and moving forward.

Epilogue

This seemingly useless piece of technology has taught me a lot about how I approach writing. I'm adaptable to new situations and often make the most of trans-media writing situations. It's also taught me that to constrict myself within arbitrary boundaries does me more harm than good. And, it proves that changing one's writing activity isn't as easy as it seems. We rely on our antecedent knowledge more than we think we do, and, when faced with a new and intimidating challenge, we're likely to fall back on it. And if one can find *all that* in a SmartPen, who's to say that a SmartFridge wouldn't have the same effect?

Works Cited

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Maddi Kartcheske is a second-semester junior here at Illinois State University studying creative writing and minoring in civic engagement and responsibility. She's enjoying her second and final year as the Writing Program co-intern, and she couldn't be more proud of what she and Colleen Keefe have accomplished this year with the help of the WPLT. When she graduates, she'll be travelling with Up With People (Cast B, 2019!), and she's excited to start making a difference outside of her community!