"The Routinization of Reading: Using Digital Annotation in the Composition Classroom"
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This paper explores digital annotation tools as a way to make solitary reading practices more visible and engaging. I am in the process of modifying an existing annotation tool to use in my English Literature course at Hunter College, in Manhattan. This course, entitled "Introduction to Writing about Literature," focuses primarily on teaching close reading to college freshman and sophomores. As any English instructor knows, the close and critical attention to aesthetic elements of literature does not come naturally to most students, and these skills have to be cultivated through repeated modeling and practice in the classroom. In particular, instructors must make visible the attention to language—specific sentences, phrases and words—required in close reading, and demonstrate how to elaborate meaning or significance from these elements. For this purpose, I've found that using a digital annotation tool to practice *active reading skills* is immensely helpful. The term "active reading" denotes a variety of physical actions, such as highlighting, underlining, and writing in the margin. For English studies in particular, active reading aims to identify elements of diction, literary devices and form for analysis. [**SLIDE**] Using a popular digital annotation tool, called Hypothesi.is, I can model close reading for my students in real time, which they can then practice on own using the tool. With Hypothes.is, I am able to demonstrate what close attention to language looks like, and see how my students are developing their familiarity with literary analysis that we learn in class. [**SLIDE** - example of Hypothes.is, using it to promote active reading--- here students discuss themes and symbols in the text]

While this tool has been immensely helpful for teaching close and critical attention to language, I've find myself more and more interested in how I might engage *nonverbal* or *pre-verbal reactions* to reading. Here, I wonder how the sense of "active reading" can be expanded to include *affect* or feelings that occur in response to texts, and how these enact an embodied rather than discursive learning process. While traditional annotation make visible the role of verbal analysis and interpretation in reading, and allows teachers to follow their students' understanding of the text, it does not access emotional and instinctual reactions that often occur in reading. I am currently exploring how an additional feature to annotation, specifically *the option for color-coding* annotations through a multi-color highlighter, might allow students to confront their more immediate responses, feelings, and gut reactions during the reading process. By choosing the color of their highlights, or categorizing their responses according to pre-set colors, students will learn to recognize their bodily and emotional reactions to reading, and might then see how *these feelings* are part of a larger, analytical process. In my conception, students might use colors to identify moments of interest, confusion, or other affects that deserve further scrutiny; or they might use colors as flexible categories that indicate different areas of understanding---such as figuration, themes, or syntax. In this way, the tool will not only engage affect and bodily reactions, but also allow for visually formalizing the interpretive process.

My proposed annotation tool builds off of the codebase for the Hypothes.is project, and will be integrated into a WordPress website that contains the course readings so that students can use it for classwork and homework. Before discussing my theoretical framework for developing this tool, I'm going to give a basic explanation of how Hypothes.is, and digital annotation in general, functions. Hypothes.is is an open source annotation tool that operates as a browser

extension, which means that it can be activated and used on any page that appears on a web browser. To make an annotation, users highlight the desired text and type their comment in a simple text box that appears. After saving their comment, the original text is highlighted, and all users may view the annotation on a collapsible sidebar. By selecting the "reply" button, users then can respond to the comment, which will appear below the previous annotation on the sidebar. My proposal would change only appearance of the highlighter by offering options for more colors, rather than just yellow, to highlight the text.

[**SLIDE**] In developing the tool, I wonder more broadly how annotation might expand or reduce the quality of the student's engagement with the text. Here, I'm concerned in the tension between what I call the **"provocative"**---opening up the text to new insights---and the **"prescriptive"**---limiting a student's interaction with the text to a predetermined set of choices or options for responding. In exploring this tension, I have three main questions:

- First, how do annotation tools support a prescriptive approach to teaching close reading: how do they create a standardized method or process in responding to texts?
- Second, more specifically, do additional features, such as colors, categories, or tags, for example, actually limit the kinds of responses students might have without these options? Do these actually prompt certain kinds of responses or create a confining structure?
- And finally, from the opposite perspective, how can giving students more *nonverbal options* in an annotation tool provoke them toward more spontaneous insights?

In answering these questions, I am influenced by the work of N. Katherine Hayles, John Bean, and Audrey Watters. These theorists' work, which range across the subjects of cybernetics,

college composition, and critiques of education technology, situate my thinking on the role of affect in technology and in writing.

The work of N. Katherine Hayles in her book, *How We Became Posthuman*, explores topics centering on human interaction with machines, particularly the tension between embodied and disembodied knowledge. Hayles' book examines "how information lost its body" (2). By this phrase, Hayles means the idea, descendant from eighteenth century liberal humanism, that knowledge and feelings function as a rational head to the unruly body, and therefore exists independently from the body. She extends this philosophical trend into conceptions of the posthuman, which imagines the body as a machinic prosthesis of the mind. In Hayles' work, I'm interested in how annotation engages with reading as an *embodied practice* that engages extra-textual knowledge. In other words, how can annotation connect more directly to knowledge as feeling and affect, rather than knowledge as information that exists purely in a verbal form?

John Bean's work also influences how I approach affect as part of an analytical process. His book, *Engaging Ideas*, which is a classic in composition studies, explores how college composition and rhetoric instructors might use writing as a method to teach critical thinking skills in the classroom. Bean suggests that instructors organize their lessons around "problems", specifically, "beautiful problems… [which] create natural critical learning environments" (3). He explains that good writing assignments provoke a kind of productive discomfort, and that academic writing ought to capitalize on this "intellectual and often emotional struggle" (23). I'm interested in exploring how such "beautiful problems" create moments of insight and spontaneous response, and how affects that Bean isolates, like "wonder", "discomfort" and "struggle," might stimulating thinking.

My emphasis on nonverbal or preverbal affect is an attempt to resist current "edtech", or educational technology, tools and platforms that quantify student learning. The effects of edtech range from exploitative to harmful, as Audrey Watters explains in her extensive investigations on dangers of collecting information on students. Data gathering not only makes students vulnerable to those who would profit from them economically, but also reduces them data points and labels, such as "cheat" or "at risk". Recently, Watters investigates how certain edtech tools that track student performance, in order to create "personalized" learning experiences, actually standardize and automate education. Wary of these trends, I intend to use annotation technology in thoughtful ways that resist fulfilling reductive "learning outcomes" championed by edtech. Here, I'm particularly concerned about the line between what can and cannot be "quantified" through digital annotation. I worry that a tool which marks emotion and affect would facilitate new means of tracking and assessing those responses, as some of my analysis below suggests.

Now to turn to my analysis. The tensions I've described above between the quantifiable and unquantifiable, writing and feeling, and embodied and disembodied knowledge play out in several recent annotation projects. I will review a couple of the most interesting annotation tools that directly or indirectly engage affect and emotional reactions to reading. My review of these tools suggest how I (and other English instructors) might experiment with active reading and assessment in order to unlock moments of emotional struggle and insight, rather than aim for measurable "learning outcomes".

The project most relevant to my own project is a tool called "Ponder" [**SLIDE**], created by a private tech company, Parlor Labs, Inc. Like Hypothes.is, Ponder is a browser add-on tool that can be activated on any webpage. This tool shares a basic functionality with Hypothes.is,

which is highlighting text and responding through a written annotation. However, the company describes Poder as a "micro-response tool", because it has some additional features, including options for tagging different reading "reactions", called "sentiment tags". These sentiment tags allow students to categorize and color-code their responses according three options---either "understanding", "analysis', or "reaction". [**SLIDE**] Carl Byth explains that goal of this "microresponse" strategy is to condense student responses into a simple expression that others can most easily engage with. These "sentiment tags" facilitate reading as a social experience:

> To encourage students to "read each other," Ponder limits responses to short phrases called sentiments that fall into three categories: comments about text comprehension (e.g., "I don't get this"), critiques of the text (e.g., "This smells like hyperbole"), and emotional responses to the text (e.g., "Tsk, I disapprove.")
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Here, the pithy annotations allow interpretations to be shared and recognized among readers. A comparison could be made between these "microresponses" and emoticons or emojis, which are a more exaggerated way of condensing feeling into a expression that's easily shared across social media. Despite the obvious social benefits of this tool, this prefabrication of responses seems constraining. By forcing the reader to choose between "clarification", "analysis" or "emotion", is the tool determining what kind of reaction someone might have? Or do these three tagging option (the cognitive, analytic, or emotional) function as an "enabling constraint", that is, as a productive scaffolding that guides students toward thinking more deeply about their reading? Keeping these questions in mind, I now turn to another tool that functions similarly to Ponder.

This other example of digital annotation comes from a project called "Lacuna Stories", [**SLIDE**] developed by the Poetic Media Lab at Stanford, where it is incorporated as a Learning Management System. One major difference between Lacuna Stories and tools like Ponder or Hypothesi.is is that Lacuna Stories is its own platform for social reading and writing. As such, it is used by schools like Stanford as a central organizing space for a course, like Blackboard or Canvas, and provides a reading and writing interface for engaging with course materials. Despite this difference, the annotation component here functions similarly to Ponder: the reader highlights a section of the text, and has the option of making a comment. Then, the reader is prompted by options for different types of responses. [**SLIDE**] Like Ponder, there are categories for responding, which are also color-coded: here, the categories are "Comment", "Question", "Analyze", "Connect".

According to Stanford instructors Amir Eshel and Brian Johnsrud, one of the tool's main benefits is how it visualizes the student's solitary responses to reading in a way that enhances classroom conversations about the text. It allows the instructors to create a "dialogic space" within the classroom that explores and expands upon student annotations. However, while this approach emphasizes students' reactions to reading, it also runs the risk of prescribing or establishing certain textual interpretations over others. The instructors admit that Lacuna creates a trade-off between what they call "guidance and discovery", that is, "a tension that must be negotiated between the desire to allow students the space for intellectual discovery and the desire to guide their learning along a pre-specified path" ("Making Reading Visible"). This tension emerges when the act of annotating primes students toward more fixed interpretations of the text before they even enter into the classroom.

The effect of this priming is enhanced when we consider another aspect of the tool, which tracks and visualizes student annotations across the platform. For, unlike Ponder and Hypothes.is, Lacuna Stories contains an "Annotation Dashboard," only visible to instructors, for them to follow their students' progress as they make annotations. As the instructors at Stanford point out, "annotations... serve as an accountability mechanism for completing assigned reading in a timely fashion, because instructors will see students' activity on the text and students will know that instructors can see this activity." On this "Annotations Dashboard", student data such as the number and length of annotation is quantified and visualized in a series of graphs and charts. [**SLIDE**] Here is an example of what the dashboard looks like. In the panel, "Filter by Time", instructors can view the raw number of annotations made on any given day of the course, getting a sense of daily participation. In "Annotation Details", a series of pie charts indicate the relative amount of annotations by category, the length for each annotation, and the ratio of shared to private. Here, in particular, I wonder at the purpose of tracking the length of each annotation, and how such metrics might prioritize the quantity of writing as an assessment criterion. Finally, the "Network" section connects students to the texts they have annotated, where the links between them are weighted according to the amount of annotations each student made on each text. By directly visualizing quantitative (rather than qualitative) information about student annotations, the Annotation Dashboard potentially engages in the reductive effects of certain edtech tools that Audrey Watters warns about.

Interestingly, however, there is a way that the tool uses quantified data in order to harness aspects of reading that cannot be quantified. The visualization of heavily annotated areas of text (in the "Network" panel) allows the instructors to identify moments of intellectual disagreement

between annotations, and turn them back into sites of affect. The instructors explain that, "By using Lacuna as a window into students' reading, [we] were able to pinpoint the exact places in the text that generated the most frustration, confusion, or disagreement [among] students" ("Making Reading Visible"). Here, the threaded annotations, where students engage in debate and conversation about the text, serve as an indicator of tension, what I'll call *productive affects*, in their reading. Instructors can then turn the class's attention to exploring more fully these moments of tension. The emphasis here on frustration and confusion enacts something analogous to John Bean's strategy of posing "beautiful problems" to guide class writing and discussion.

Shifting away from these examples, I now turn to my project proposal, and discuss two ways that my modification of the digital annotation tool might engage affect as part of the close-reading process. [**SLIDE**] This image shows how one version of the tool might look in a web browser, which includes the option of multi-color highlighting. Here, we can see the source text, a poem by John Donne, and the annotations in the sidebar to the right. On the poem, the annotations are highlighted in different colors, which are used to categorize the type of annotation. The annotations in green indicate literary devices (here, a metaphor and a pun); the annotation in blue indicates comprehension (here, explaining an anachronism); the one in purple paraphrases a syntactically challenging section of the poem; and the annotations in red, in the second stanza, indicate imagery of violence. As these examples show, the multi-color functionality can denote a variety of responses, from ones that follow the teacher's instructions to the reader's own affective reactions. One of the challenges in developing the tool will be to think through the affordances of using color in pre-defined ways and using it more spontaneously.

Another way I am interested in using color is by assigning different affects to specific colors, using color theory as a guide. [**SLIDE**] Here, you see pictured a "wheel of emotions" developed by Robert Plutchik, a professor of psychology, who transposes his own theory of emotions into a color wheel. Here, the color differences indicate changes in emotional quality and saturation indicates the intensity of emotion. There are eight primary emotions, which run along the second ring: these are joy, trust, fear, surprise, sadness, disgust, anger and anticipation. The more saturated colors on the inner ring represent more intense forms of the emotion, while the brighter colors on the outer rings are milder. For example, apprehension (light green) is a mild form of fear, while rage (dark red) is an intense form of anger. Plutchik also theorized emotional dyads, which are feelings composed of two emotions. You can see the dyad between fear and surprise, which is awe, or between joy and trust, which is love.

I imagine that students might use these colors not only to highlight text according to their feelings or gut reactions, but also to engage with other students' highlights in the form of layering. One of the benefits of the Hypothes.is highlighter is that it builds a degree of opacity to each highlight, so that multiple highlights on the same piece of text will appear more saturated, and that colors can mix into secondary and tertiary combinations. I wonder what would happen, for example, if one student were to highlight a piece of text as orange, for "anticipation", and another were to highlight that same piece as red, for "anger". The resulting dyad, which would be red-orange, signifies "aggressiveness" on the chart. How does this result change the way we read the text? Does engaging underlying feelings that occur during reading enhance the way we understand we understand language or literary devices? My sense is that confronting and attending to these feelings will open up ways that students connect to what they read.

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