Symmetrical Speech

Qualitative Textual Analysis

In Humanist Digital Design

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Chapter I

Introduction

I’m self-admitted a late arrival to the party when it comes to design. When I turn around from my desk in the studio where I work, I’m met with colleagues who had a little bit of a different entry into the field. While they spent their undergrad honing illustration techniques for print applications and arguing over what weight of Helvetica best suits legibility on screen; I was buried in the stacks of the library translating ancient manuscripts and up ’til all hours parsing the merit of Plato’s influence on St. Augustine’s writing. All that to say, when I began practicing design, I brought a philosophical approach to my work. For my thesis investigation I wanted to take this perspective a step beyond an influence on the process to integration into a final artifact itself. Exploring the Digital Humanities, which focuses on areas such as history, literature, and culture in online environments presented a vast opportunity to understand design contextualized within principles that I valued. And reflexively using design to create a digital system for text analysis seemed only fitting in relationship to a process that I dedicated so much past study to.

Overview

There’s a much effacing colloquialism that iPhones have more computing power than NASA’s Apollo mission control systems. How a person sorts out the technicalities of this assertion is beyond the point; most people can agree that modern computers provide dynamic opportunities for a range of applications. One such application is research and inquiry in the field of the Humanities including history, literature, and culture. Specifically, academics studying textually based, artifacts past and present. People may now input a body of text such as a speech or poem into a digital tool that will output a reading of minuscule detail. During the interaction
the researcher can easily discover: the frequency of certain words, recurring parts of speech, and even emotional sentimentality. The new offerings of digital tools challenge both the role and approach of researchers in relationship to their work. For example, If a person knew the frequency of specific verb tenses in Romeo and Juliet, would they understand Shakespeare’s writing more clearly. Some suggest that the influence of data driven methods reveal insights that are otherwise painstaking in acquisition, while others assert that flatly evaluating cycles of syntax will only lead to a faulty overconfidence in perceived accuracy. This tension has led to the emergent field of Digital Humanities. Simply put, The Digital Humanities seeks to do humanities research in the digital environment (Burdick, 2012, p. 102).

The goal of this thesis is to investigate the value of Digital Humanities research retaining the aspects of subjectivity and openness in the digital environment through prototyping a digital tool for use in text analysis. As a result others might have a theoretical and tangible example on which to base further research. Furthermore design practitioners might have a case study on which to evaluate an approach to user interface and participatory design that considers the process of user experience beyond a task based utilitarian model.

Methodology

The secondary research in this investigation includes a literature review that examines how key figures in the field of the Digital Humanities define the language of digital interfaces and the role of text within those systems. The presented context will then allow one to understand the importance of engaging with cultural forms of expression and behavior in digital spaces and with digitally based artifacts. The secondary sources will also highlight a key type of engagement, the interpretation of text to derive meaning. The study subsequently explores
past applications of computation to aid in the acquisition of such insight through comparing and classifying existing examples. As a result, the secondary research became the basis for the primary research in the pursuit of critical making; an approach to design that uses the generative process as mode of research through critical evaluation and reflection. Through the use of critical making a tool for text analysis was developed, tested, and evaluated for the successful provision of affordances in better exploring text in a digital space. Finally, user personas are described to serve as a possible framework for future researchers and designers. Each persona, or fictional character, is constructed based on the qualitative responses gathered in user testing. Thus, the personas may function as a broad heuristic pattern or archetype for others on which to consider user segmentation.

Chapter II

Web Design Now In Production

“Design is a method of action”

(Charles Eames 1972)

Charles Eames along with his wife Ray are widely recognized key figures of design practice in the 60’s. Charles famously described design not by the artifacts that design as a discipline produces, but rather by the process of design itself. In this perspective, design does not exist in and of itself; rather it is applied to a specific context or product. Thus design can be evaluating broadly by its principles of aesthetics and organization across disciplines such as architecture, fashion, automotive, web, app, user experience, services, ect. With the integration of the Internet into many people’s daily lives, the process of design and the artifacts
its practitioners have created can be ubiquitously seen online. In a 2015 Atlantic article the Internet reportedly hosts around 1 billion web pages (Lafrance, 2015). This means that much of what formerly only existed in print now also or only resides online. The sheer scale of this many artifacts provides reason enough for designers to consider not only the process of creating but also critiquing, evaluating, and understanding these artifacts cultural influence. Consequently, the Digital Humanities is an area of scholarship that provides a theoretical basis for how designers can interpret this large body of work. The following sections give an overview of the Digital Humanities. In addition, clarification will be given to key terms within the scope of this investigation to give further basis for the primary research.

**Intro To The Digital Humanities**

"The digital humanities, at its most straightforward, is the application of computational principles, processes, and machinery to humanities texts— and here I use “texts” to refer to all forms of materialized cultural forms such as images, books, articles, sound, film, video, and so on. ”

(Berry, 2014, p. 24)

David M. Berry’s quote outlines a broad definition for the field of the digital humanities. The above statement made by Berry can be broken down into two majors aspects for further study namely: the examination of cultural artifacts that people digitally produce and the use of what many would consider traditional humanities techniques in a digital space. Undoubtedly both sides of this equation are inextricably tied to one another, but also provide differing perspectives.
1. Digital Materiality. Firstly, the digital environment has undoubtedly shaped the how people consider online-based materials as artifacts. Sydney Shep explains, “The characteristics of digital objects are often described as editable, interactive, open, and distributed.” (p. 326) This position of flexibility therefore differs greatly from artifacts of the past that were marked by a more static interaction. One could argue that a physical book certainly provides an interface with a form of interaction through the accessing of information as one reads. However, unless a person marks or edits a page with an outside agent such as a pen the text of the book will remain unmuted. In comparison the very medium of digital artifacts invites the opportunity for change within themselves as a function without an additional interjection. As a result, digital materiality shifts the focus of text from pure form or structure to modes of interaction. In the words of Johanna Drucker, “what something is has to be understood in terms of what it does, how it works within mechanic, systemic, and cultural domains” (2013, p. 2). Take for example self publishing an article through an online platform such as Medium (https://medium.com/). The text contained within the article is immediately subject to actions such as social sharing through Facebook or Twitter as well as globally accessible critique through commenting threads. These actions expand how the text is considered beyond an evaluation of content to the implications of how the text is used in the scope of an online social group. The requisite implication of so much online activity is the merit of segmenting the “Digital Humanities” from the Humanities at large.

“Might it be better to raise the question of the “post-digital,” since we are rapidly entering a moment when the difficulty will be found in encountering culture outside of digital media?”

(Berry, 2014, p. 26)
Berry’s above quote reinforces the importance of studying the digital environment due to how enmeshed topics of history, culture, and language are with digital media. This means that it could be an oxymoron to say Digital Humanities. Certainly it is difficult to bring to light an aspect of contemporary society that has not been affected by digital technology. Writer William Gibson exclaims that, “Cyberspace has colonized the physical” (2010, p.1). This mentality relates to our dependence on devices and the services that they afford us to efficiently carry out daily life. For example the task of driving for many people is made easier through the use of Google Maps. Without access to a device or this service many people would have trouble navigating an unfamiliar area. Thus, using the term “digital” assumes a false dichotomy of influence and schism between digital and analog spheres as technology integrates seamlessly into our routines (Berry, 2014, p. 26). Whether or not the Digital Humanities receives a segmented taxonomy, the wider importance of understanding digital artifacts remains substantiated.

The digital influence is far reaching, even extending to forms classically categorized as analog or tactile. In many cases when an analog medium of expression is utilized for creative expression it is translated into a digital form. One might point to the rising popularity of analog film photography. Amazon’s Christmas sales reports showed that the most popular item in the camera department was the *Instax Mini8*, an instant film Polaroid style camera (Amazon.com INC. 2017). Even though may photographers will capture an original image on film they will later also digitally scan the image and share it on social media outlets and online communities such as Instagram or Lomography. Conversely, one can also now observe the influence of media or artifacts originally produced in a digital form on the tangible world. On of the most popular instances of the process is Internet memes. Internet memes are virally shared images accompanied by text for the purpose of cultural critique or humor. After the creation and propagation of meme one may recognize the adoption of the meme’s phrase or “internet speak”
in everyday life. In this case the discursive patterns of communication have been shaped by online idioms.

2. Humanities Values In The Digital Environment. The field of the Digital Humanities is not only concerned with the understanding the materiality of digital artifacts but also the opportunity to use digital technology to carry out humanities tasks such as writing or historical inquiry. This brings to the surface a question of philosophical grounding in how technology used. Should the humanities adopt the quantitative and statistical aspects inherent in many digital forms of interaction or maintain the qualitative grounding of the social sciences.

“A tension exists in the contemporary era of the digital humanities, with one wing of the humanities embracing quantitative methods, the other continuing to insist upon its roots in qualitative analysis. The quantitative wing becomes integrated into social sciences. The other fights to defend its autonomy and critical stance.”

(Burdick, 2012, p. 107)

In the above quote Burdick isolates the two perspectives at play. On one side researchers have adopted quantitative practices from other areas of study within the humanities due to the ease of using digital tools. These tools allow researchers to mine large data sets and automate tasks that would have previously proved painstaking. The result of such practices are perspectives of humanity that are squarely based on quantitative insights (Burdick, 2012, p. 107). While valuable in providing a previously hidden perspective these techniques may nurture a false sense of objectivity in releasing the agency of the researcher (Turnbull, 2014, p. 260). In light of these attitudes one must carefully balance the capabilities of computation with the interpretive responsibility of the individual researcher. As Burdick points out above, it is important that a
researcher’s role in the work not become completely passive. In this way the humanistic quality of the interaction is maintained.

Defining The Interface

“In its simplest sense, the word refers to software that shapes the interaction between user and computer. The interface serves as a kind of translator, mediating between the two parties, making one sensible to the other.” (Johnson, 1997, p. 14)

The use of digital tools and technology involves the use of a digital interface. Johnson’s quote points to the purpose of the interface as a bridge between a user and a computer that allows the user to accomplish a desired task. An interface then spans this gap through the use of a metaphor. Johnson explains this point using the concept of folders. The virtual system of storing files in a folder mirrors the tangible construction of an office file cabinet (p. 14). By translating the computational languages into a visual reference familiar to most people, users are able to interact with the interface to achieve desired functions. Thus in regards to the Digital Humanities, researchers are utilizing not only conceptual frameworks but also interfaces embedded with translatory metaphors.

However, interfaces are often mainly considered and built with a utilitarian task-based orientation in mind. In developing a task-based system that focuses on pragmatism, or direct practical application, designers tend to focus on speed and efficiency. The result is an abundance of what Burdick terms, “digital tools designed for rating restaurants, scheduling appointments, or piloting airplanes (which) require ease of use, categorical specificity, and even fail-safe precision.” (Burdick, 2015, p. 14) The presentation of such apps focus on extreme clarity to create a system
that is easy to use. By utilizing interfaces in this way one might lose sight of how interfaces relate to the world of the users, through metaphor. Instead the user begins to nurture a false sense of objectivity in using the interface, that of what the interface presents exactly corresponds to phenomena in the physical world. However, the nature of a metaphor is a comparison of two dissimilar entities as similar for the purpose of understanding. The current circumstance of how many people understand interfaces poses the opportunity to explore how one might break free of the expectation of functionality and increased convenience (Johnson, 1997, p. 213). In parallel to the attitude earlier described in section one, releasing researcher agency, this style of interface seeks to hide process for the sake of user-friendliness resulting in a further reliance on the interface.

“So naturalized are the google maps and bar charts generated from spreadsheets that they pass as unquestioned representations of “what is.”

(Drucker, 2011, p. 1)

In relying on devices in people’s daily lives, they allow interfaces to translate how we see the world. Drucker provides a fundamental classification that divides interfaces into two categories. Interfaces can be thought of as either realist or constructivist (p. 1). A realist interface follows the above quote. These types of interfaces are developed to present information in a completely objective way. In the case of an excel chart or map, what appears on the screen exists exactly as it is in the world. As Drucker points out above this leads to a lack in criticality on the part of the user. Realists interfaces however do not leave room for the humanist values of subjectivity, nuance, ambiguity, or situational knowledge (p.1). In comparison a constructivist interface looks to in some way include these values in how it representation of information. Drucker uses the example of an archeological map to explain this principle. She describes how a constructivist map could represent the certainty of an ancient city’s locations through differing
shades of color or fidelity in the graphical representation (p. 1). Drucker further qualifies the
information in relationship to each interface through drawing a distinction between data and
capta. In a realistic interface the user passively receives information as data or information given
to be fact (p. 2). While in a constructivist interface the user actively evaluates information as
capta or information taken to critique (p. 2). This paradigm can provide a base language for
evaluating existing examples of interfaces as well as the basis for further exploration in interfaces
that more strongly represents humanist values.

Text In The Digital Environment

“Text remains a universal vehicle for human thought and often it’s the shortest distance
from one mind to another. But as we stumble into digital renaissance, our understanding
of both text and reading will have to encompass more than mere words: hyper
connectedness, vibrant plasticity, social interaction, and dynamic contextuality.”
(Ferro-Thomsen, 2011, p. 73)

An important form of information accessed and interacted with by people through
interfaces is text. While Berry’s earlier definition of text spans a broad classification of all cultural
material this investigation will qualify text as written language. Ferro-Thomsen’s exposition
of text in the digital environment highlights the significant possibilities that transferring text
into a digital form provides to reshape the experience of reading. The experience of reading was
formerly tied to physical interactions such as turning a page or underlining a sentence, however
contemporary reading is no longer defined by these antiquated actions (Bridle, 2011, p. 56).
Each aspect put forth by Ferro-Thomsen can be further defined to structure this contemporary
type of experience. Hyper-connectedness refers to the ability to navigate freely to other related information. This could take the form of embedded links or the simple potential to “Google” a title or author at any moment within an interaction. Social interaction is the capability to communicate with other users regardless of physical location. The obvious consequence of this aspect is social media platforms such as Facebook or Twitter, however this could also extend to self-publishing platforms that allow users to comment on each other’s writing such as Medium. Vibrant plasticity can be understood as the ability to quickly change the text into different forms. This element can be clearly seen in word processors, such as Microsoft Word or Google Docs, that easily allow users to modify the recorded text at will in color, size, typeface, or decoration. Compared to the messy mutable properties of analog machines such as typewriters which require a considerably larger amount of effort to change a text once it is composed. Lastly, dynamic contextuality relates to the potential to transform the text with the aid of software or online based programs. For example, Google Translate allows a user to quickly see a source text in a different language. Furthermore users may use a tool such as Voyant to transform the text into a mathematical rendering of form. While all of Ferro Thomsen’s points are influential to emerging attitudes regarding digital text, the later qualities of vibrant plasticity and dynamic contextuality, begin to shape the foundation of a more full reading experience that fosters text analysis thereby activating user agency in Drucker’s constructed interface.

**Text Analysis**

Broadly, the goal of text analysis is to change the way in which a person reads a given text. Through changing the reader’s perspective they are then able to derive new insights from the source material (Sinclair and Rockwell, 2016, p. 275). The critical term within the aforementioned definition is the aspect of new insight. Rudi Laermans expounds on new insight
through the distinction of minimal and maximal reading. Minimal reading is characterized by the general process of immediate sense making (Laermans, 2011, p. 98). In the act of minimal reading a person is simply evaluating the presented information at face value. Laermans gives the example of a person looking at a picture that portrays a person. In a minimal response a person will interpret the picture simply exclaiming, “I’m looking at a picture of a man” (p. 98). A maximal reading of the same image would examine the less apparent questions that investigate the world behind behind the singular represented moment. In response a reader may respond by reflecting on, “why does the man wear these clothes” (p. 98). In comparison one may recognize the parallel between minimal reading with realistic data and maximal reading with constructed capta. The first categorization typifies a lack of deeper investigation indicative of a flat reception of information where the reader/user passively accepts a surface meaning. On the other side the reader/user must actively engage with the semantic range of the message that the author communicates. In this way, Laermans points to considering, “one or more possible meanings, or even absence of meaning” (p. 98). In an active process of analyzing a text through this second lens a reader/user is able to both investigate the author’s intent in communicating as well as the reader’s own presuppositional tendencies.

A disconnect in known humanist pursuits to develop text analysis in digital space can be seen in the application of maximal reading within a realist interface. In this approach the researcher may use a computational process to identify the frequency of specific words or particular patterns in the author’s use of language. The data accrued from such an exercise might then be translated into an alternative form that allows the reader to understand the text in a numerical way. While this type of exercise does provide the value of an alternative perspective the text becomes data rather than capta. Thus the reader responds minimally understanding that an author frequently uses a particular noun. However, the reader is unable to maximally reflect
on the deeper meaning of using the specific noun. Maximal reflection is then valuable in gaining a more holistic perspective of a text due to the reader's participation in the interpretive process. The words used by the author are situated in a specific context with extrinsic factors influencing the form and content. Reflexively the reader is also surrounded by a contemporary context as well. Through greater participation while reading and interpreting a person is able to consider a broader range of factors affecting how one could perceive the text. It is the position of this thesis that further exploration needs to be conducted to allow users to interact with the plasticity of text in order to build a sense of information as capta. As a consequence, the user will observe a recontextualized form of the text and a subsequent deeper analysis. The larger implication in regards to the Digital Humanities as a research discipline is the ability of interfaces to articulate humanities values within text analysis oriented system that reveal subjectivity rather than realistic systems that present a quasi objective data set in order to activate the user as a critical agent throughout the interaction.

In order to make such a system possible designers must expand what they consider valuable to provide for a user. In the similar fashion to past emerging categories such as “responsive” web design which considered the need for content to appear accessible between a sea of devices; the time may have come for further solidification of what one may call “humanist” web design. In so much as a designer upholds modularity or legibility, the might also consider participation or ambiguity. As described earlier with Charles Eames quote that, “Design is a method of action”, one might seek to understand both the cultural implications of that method and how one's approach to the method can be further developed through Humanities values.
Chapter III

Text Analysis In The Wild

The following examples were collected to evaluate existing cases of interfaces that utilize text analysis. In the previous section concerns were raised around the lack of realist interfaces to include humanist values and user agency in the process of interpretation. The sites below further explore the validity of this premise. Initially, prior work that I conducted was evaluated to raise basic categories for understanding text analysis interfaces. Through this critique two broad categories of data driven interfaces were identified, repetition and volume. Repetition oriented interfaces presented the text in light of diagnosable patterns within the structure of the text. Whereas volume oriented interfaces were directed at showing how much of a particular data point was present. As a result of these evaluations clear boundaries were set for what ought to be avoided in the process of later prototyping a constructive interface type tool.

Figure 1. was captured from textual 2016 experiment conducted by Shelby Muter and myself that explored the process of analyzing text in a digital environment. The experiment sought to better understand how people recount contemporary events using social media. For this experiment 100 tweets were collected at random on March 17th, 2016, commenting on The Bachelor season 20 from weareletters.co/hthistory
Bachelor season 20 finale, using the hashtag “#TheBachelor”. After collecting the tweets the larger corpus was divided into common themes, which were further analyzed using a keyword identifier. The resulting interactive archive allows the user to understand the text in several different ways. Initially the user is able to compare categories of tweets through an assigned color. This allows for a base mode of comparing each tweet in relationship to the larger corpus as seen in figure 1. Users can also uncover the topics of discussion within the larger body of text. In addition to the visual reference of color, users may also see the particular themes percentage of the total corpus and the themes specific keywords. Figure 1. shows the statistic that 15% of the total tweets focused on the topic of the main character Ben Higgins. In comparison, Figure 1. also depicts the statistic that 25% of the total tweets amounted to personal non-specific expressions of emotion about the show, such as, “of course I cried while watching #TheBachelor.” Through the visual coding and statistical breakdown of the text one might draw the conclusion that personal reflection in reference to the show loomed more important to the authors of the corpus than describing the events of the episode or the characters involved.

#History served as a valuable initial exploration of how one might approach text analysis in a digital environment. This phase of prototyping provided a way to test the conceptual basis of a project in order to gain insight for subsequent future work. Through observing participants user test the site we as researchers were able to better understand how people interacted with the text. Upon evaluation one may refer back to Drucker’s paradigm of realist vs. constructivist methodology. While #History could be seen as a successful initial step into the world of the digital humanities it falls heavily into Drucker’s realist category. #History presents statistically based model of interpretation that eliminates situational nuance. The weakness of the interface is the structured siloing of text into inflexible categories that lack overlap. The information presented assumes that the text can only have one prescribed object of reference, such as: a
character, situation, or item. In retrospect the results would more fully embrace a humanities approach through an increased level of complexity. The reduction of complexity in a given data set poses the danger of false knowledge through inadequate correlations.

**Parsing Words Data**

![Word Cloud Example](http://www.wordclouds.com/)

**FIGURE 2.** Example “word cloud” displaying a visualization of the first paragraph of Moby Dick retrieved from [http://www.wordclouds.com/](http://www.wordclouds.com/)

As a result of critically analyzing #History as a tool for text analysis one might recognize that many similar interfaces fall into one of two categories for presentation of text: repetition and volume. As a consequence these interfaces trend towards Drucker’s realistic approach thereby running the risk of oversimplifying the data set towards objective insights. The penultimate pseudo-anachronistic example of this phenomena is the ubiquitous “word cloud”. A word cloud, seen in Figure 2., transforms a selection of text into representation of the corpus that determines the scale of each word based on how many times it is repeated. The user is left with an anemic graphical representation of text where they can conclude that big words must be important in some slightly less arbitrary way then a roll of the dice. Certainly representations in text analysis have developed far beyond word clouds in complexity, however they remain tied to quantifiable
breakdowns of text. The examples below demonstrate parsing the given text into mathematical data points. While users may extract certain value from the offer of a seemingly objective approach, aspects of meaning may also be lost through the passive reception of information.

1. Repetition. Figure 3. displays Patterns of Speech: 75 Years of the State The Union Addresses, a NY Times interactive article chronicling the trends of specific words in presidential addresses dating back to Theodore Roosevelt. The primary mode of communicating information within this example is the repetition of terms over time. When the user scans the chart they are able to compare when specific terms emerged most frequently in comparison to who was in office. The second row of Figure 3. shows how the word invest worked its way into presidential vernacular in the mid 90’s with presidents Clinton and Obama. In addition to many predecessors, the term remains comparatively absent from president George Bush’s vocabulary. One could draw a conclusion that President Bush was disinterested in economic growth in comparison to his Democratic counterparts. However, additional context might reveal a more complex political landscape regarding the immediate concern of conflict in the Middle East.

Figure 3. New York Times interactive article analyzing 75 years of presidential speeches retrieved from http://www.nytimes.com/interactive/2011/01/25/us/politics/state-of-the-union-words-used
2. **Volume.** Figures 4. displays Preservation of Favored Traces, a work of information design firm Fathom, visualizes how Darwin’s writing developed from the first to sixth edition of his seminal work. This evaluation tool focuses on representing the volume of each category. When the user interacts with the interface they are able to compare from start to finish how much of the original text remains compared to each edition of the book. In order to clarify the system each edition is color coded to visually link it to placeholder shapes in the graph. Similarly to the previous example Traces quantifies words through the technique that the designer chose to employ. While the user can compare the “before and after” state of the animation there is little room to explore beyond the amount of text that has changed referential color. Both Patterns of Speech and Preservation of Favored Traces expose trends and emergent themes among their respective text, however they do not go so far as to create affordances subjectivity. The major proposition left on the table by interactive tools that quantify words into data is that of how those words relate to a wider range of meaning that also includes the user. While the user is interacting or discovering the text in a different way then they would normally, they remain a largely passive
force, Drucker’s “data”, in the process of interpretation rather than actively participating as “capta”. If text analysis is to truly follow humanistic principles, it cannot simply rely on patterns of language in realistic interfaces, but also look to investigate how meaning is formed through the nuanced, subjective, and situational nature of meaning itself in constructivist interfaces. Within the primary portion of this thesis the development of a divergent interface sought to explore the quality of plasticity and dynamic contextualization inherent within digital text in order to reach this goal.

**FIGURE 5.** Textual analysis posters created by Nicholas Rougeux retrieved from https://www.c82.net/work/

**FIGURE 6.** Textual analysis posters created by Stefanie Posavec retrieved from http://www.stefanieposavec.co.uk/personal/#!/writing-without-words/

**Text Analysis As Art**

Although the following examples lack interactivity and were produced for a print medium, they represent attempts to represent a textual analysis in a more nuanced and expressive form. Figure 5. displays the work of Chicago based artist Nicholas Rougeux. The first work by Rougeux shows a comparison of Shakespearean sonnets through breaking down numerical patterns into “signatures” organically charted across an x-y axis. The second work examines the classic novel, “A Tale of Two Cities”, through eliminating all of the terms and only showing the
punctuation. The result is an enigmatic visual cadence of glyphs that depict the tempo of the story. While both of these examples demonstrate a more open style of graphic representation than the earlier interactive examples, their style still heavily relies on mathematical insights. Certainly, they allow for more nuanced analysis and interpretation, however one might question what type of insight could be gained from such an abstract portrayal. Figure 6. shows Writing Without Words the work of London designer, Stefanie Posavec. In each poster Posavec collected data on the sentence structure of On The Road by Jack Kerouac, and organized it into an organic structure that shows correlation between chapters and paragraphs. Again, much like the earlier examples Posavec’s work is mainly displayed around quantitative analysis. In the case of “Writing Without Words” instead of focusing on repetition the color system shows an emphasis on volume of differing categories. Both of these visual communicators exemplify a strong sense of aesthetic values that can create a sense of novelty within the viewer based on the visual treatment of the text and formal quality of each rendering. On the other hand, one might consider if the sense of novelty can create an environment for deeper interpretation of the text or reflection on the context of the reader. In this investigation these artifacts inform how others have sought to break from a purely quantitative approach to incorporate subjectivity. But in the case of moving forward into the making phase of the thesis a textually based approach was deemed to be more effective in granting access to the viewer for an accessible reading experience.

Chapter IV

Critical Making: Why Make?

The research process for this thesis utilized the framework of critical making as a primary approach for producing a prototype. Critical making connects the production of artifacts to the
process of evaluating ideas and the formation of knowledge (Ratto, 2011, p. 253). Critical making thus seeks to produce objects not for the sake of creating the object itself, but rather to better understand the intangible principles that underly the object’s existence. Through turning one’s attention to questions of why rather than what, space is created for thought and reflection instead of solely positioning the function of the object on user consumption. This approach raises an important question. Why is there a need to produce artifacts in order to raise thought and reflection?

Matthew Ratto cites that, “materiality is important because it provides a way in which a concept can be ‘metaphorically mapped’ onto a malleable surface where information can be recorded transmitted.” (p. 253) Not unlike ancient philosopher’s apocryphal and liberal use of historical figures as interlocutors in their treatises, an externalized figure can serve as a way to facilitate dialogue between both the designer and themselves as well as the designer and the wider audience of users. While Plato used the character of Socrates as a mouthpiece for different ideas, designers may produce artifacts to present their own perspective. In producing an object the maker brings their idea forward into the tangible world for people to interact with.

In keeping with an ancient trajectory others have cited theories of knowledge rooted in Greek language. John Dunnigan proposes four ways of knowing: skill (techne), intuition (nous), reason (phronesis), and theory (episteme) (Dunnigan, 2013, p. 96). Each of these areas presents a distinct opportunity for gaining understanding. Critical Making allows for a holistic approach that presents value for the externalized avenues of skill, but also the internal capacities such as theory. Designers who utilize this process are able to not simply rationalize their concepts, but additionally explore them in a material form. Nigel Cross states, “A significant branch of designerly ways of knowing then is the knowledge that resides in objects. Designers are immersed in material culture and draw upon it as a primary source for their thinking” (Cross, 2001, p.
This sentiment points to the idea that due to designer’s participation in artifact creation in commercial design practice, it is appropriate for designers in pursuit of research to also produce objects.

A critical approach to artifact creation not only generates individual knowledge production but also the opportunity to challenge broader cultural ideals. Pioneers Dunne and Raby situate this challenge through the ability of artifact creation to pose difficult questions. In doing so, designers are better equipped with an attitude to measure the possible positive and negative implications of their work on the people who use their artifacts (Dunne and Raby, 2010, p.2). This practice can also be strongly connected to the value that speculation contributes to design practice. A speculative approach can aid both the designer and subsequent audiences to imagine artifacts in a future context. Dunne and Raby exclaim, “we need to move beyond designing for the way things are now” (p.2). Thereby, divergent and unconventional solutions may be explored despite their immediate viability. In response, some have categorized such pursuits as art due to the lack of present commercial application. Bardzell clarifies the distinction by describing art as an aesthetic expression of a critical idea rather than an exploration of a critical idea with an aesthetic means attached to it (2013, p. 3299). Whether or not one sees this distinction as valid, Bardzell highlights the importance of exploration instead of expression, which can be understood as a focus of collecting data through making rather than making a critique of a given topic visual in form.

In Practice. The prior work of Anne Burdick and Jessica Barness in this area of study formed the particular theoretical foundation for both the evaluation and creation of the artifact, an experimental prototype interface. In her research, Burdick proposes that designers should construct affordances for critical feedback to better understand their work in critical making.
pursuits. These loops create layers of evaluation that widen in scope. The three “meta” layers could be seen as: the individual designers own intent for cultural critique within the act of creating, the use of the artifact in the process of reflection for the prototype’s user, and the designer’s later evaluation of how users respond to prototype (Burdick, 2015, p. 17). Success, in a broad a sense, can then be defined as the ability for the interface to create affordances for critical thought or reflection at each level or stage. While this does not tightly define a specific task based goal, such as timing how long it takes a user to click a certain button, this approach allows for a more expansive exploration that does not pre-emptively prescribe what desirable responses ought to be provoked in user testing. As the research in this paper was conducted this approach was kept at the forefront of the process in order to guide how decision were made. Every aspect of the interface ideally ought to support critical thought and reflection. In addition, Burdick’s principles paralleled the intent of facilitating maximal reading as identified in the pertinent literature. Through providing space for critical reflection the user is able to read for information and beyond the surface identification of content. Jessica Barness’ formula: investigating (X) through making (Y) to better understand (Z) also guided the making process (Barness, 2015). This formula provided a focused way to approach planning the prototype. The initial portion of this thesis presented the opportunity to explore the contextual basis for digital tools and how many tools designed for text analysis lack a subjective and nuanced approach that reflect a Humanities approach laid out by Drucker and others. Therefore, the research became focused through the lens of: investigating Humanities values through making an interactive tool to better understand text analysis. This statement provided a target to design toward throughout the prototyping process of the interactive tool, Symmetrical Speech.
Artifact Construction

**FIGURE 7.** Diagram of User Experience architecture from Jesse James Garrett The Elements of User Experience (2000)

**UX: Prototype Artifact.** The construction of the initial prototype can be explained using Jesse James Garrett’s elements of user experience. Garrett uses five levels to discuss interaction: strategy, scope, structure, skeleton, and surface (Garrett, 2000, p. 24). Garrett’s levels serve as an organized approach to interaction design. In this case, at each level of the interface design considerations were made in regards to how the interface would allow user to interact with text. Based on the secondary research the overarching goal was providing affordances for text analysis that are based in nuance and subjectivity to facilitate critical thought and reflection. Burdick’s levels of “Meta” and Barness’s critical making formula, earlier outlined, were used as the primary strategy, thus the exposition of the interface will move towards the subsequent level of scope.

1. **Scope: Content & Function.** The main issue in scope for the prototype was the type and length of the chosen text for the user to analyze. One can define scope in regards to the necessary content for the site (Garrett, 2000, p. 32). In this case the primary content is concerned with the text presented to the user to interact with and analyze. In order to accomplish the goals
of the project it appeared necessary to choose a text that would lend itself to carrying cultural significance. In possessing inherent cultural significance there would certainly be prior exposure of the user to the text allowing the user to possibly confront their existing presuppositions in relationship to widely accepted or controversial interpretations of the text. As a result an excerpt from Martin Luther King's “I have a dream” speech was chosen as the pilot text. This text certainly fit the criteria of recognizable acclaim. Many could argue that King’s speech signaled a monumental shift in the American Civil Rights movement.

I have a dream that one day this nation will rise up and live out the true meaning of its creed: “We hold these truths to be self-evident, that all men are created equal.”

FIGURE 8. Selection from Martin Luther King’s “I Have A dream” Speech (1963)

Subsequently this text is also layered due to its inclusion of a quote from the Declaration of Independence. This presents added opportunity to investigate ideas tied to subjectivity such as appropriation and ownership. The quote also presented a concise statement that would allow for more rapid ideation in form and function. While it is recognizable that the lack of adjacent context could be problematic for a broader understanding of the text, the prototype would mainly allow for an initial exploration rather than an exhaustive design.

The functional side of the artifact’s scope refers back to the aforementioned theories of language utilized by Burdick, namely its constructedness. A key idea within this broader concept represented in the function of the artifact is the ability for the user to respond to the text
through a participatory system of editing specific words with the speech. This important function decisively presents the opportunity for reflection upon interaction in the form of evaluating one’s choices. Therefore the system employed must allow for organic change and development. At this point in the investigation one may ask why there is a need to proceed with building a digital based tool when a person could also edit a selection of text with pencil and paper. However as stated earlier, the advantage of a digital tool is the unparalleled flexibility of the medium to adapt and change without incurring any destructive quality. When a text is edited on paper the result could be words scratched out and additions pushed into the margin. In the case of a digital platform, a user can edit directly in line of the document text while still maintaining visual cleanliness and the ability to quickly and conveniently reverse the changes. It is the later of the two points that provides a valuable experience, that of expedited comparison. In moments the user can evaluate their choices to gain useful insights.

2. Structure: Architecture & Navigation. With regards to the limited scope of this investigation the structural plane of the system was designed with simplicity at the forefront from both an informational and interactive perspective. The user’s text analysis took the form of an editing interaction where the synonyms of key terms within the speech are presented to the user as possible “stand ins” for the original source material. Take for example the word dream, arguably the most famous word from the speech. Upon interacting with that specific word the
user uncovers five possible alternates: vision, hope, desire, conviction, idea. Each of these choices carries its own overlapping and isolating connotations, thereby also revealing information regarding either the original context of the author or the presuppositions of the user. The word vision could conjure the image leadership, while conviction could motivate a feeling of personal responsibility. No matter the user’s choice to change the word or leave the term the same a moment of conscious reflection can be created with each option.

3. Skeleton & Visual Design

a. Overview. In this case the interface and visual design will be considered together in order to provide an integrated explanation of the design and development. The above site map demonstrates the largely self-contained architecture of the artifact. The micro site is contained to one page in an effort to limit distractions or confusion for the user. While the primary interaction occurs on the site a additional interaction, which will be discussed, occurs through navigating away from the page to third party service Typeform.
In order to build the prototype for testing Open source text editor, Brackets (Adobe Systems), was used to develop the site. Brackets provided a user-friendly platform with all the necessary functionality for writing HTML, CSS, and JS/Jquery. Upon investigation of Figure 10, one will observe the aforementioned systems of synonyms at work. One may also see the system of commenting that allowed for organization within each document.

As a whole, the interface was built with overall simplicity in mind as to not distract from the text as a primary focus for interaction and reflection. Some studies have noted that the perceivable attractiveness of an interface shapes user’s perspectives of usability. Factors including color, form, and graphic treatment all contribute to ideals surrounding attractiveness (Sonderegger & Juergen Sauer, 2008, p. 403). The downside of allocating special attention to the aesthetics of a system in a prototyping phase is the possible cultural influences that might unnecessarily affect the user’s behavior. While this is a recognizable issue within the design and testing process, the value of employing an austere visual style was upheld in order to provide the highest transparency of interaction for the user.

FIGURE 11. Symmetrical Speech HTML and JS text files on Adobe Brackets
b. Primary. Upon landing on or opening the site the user is greeted with an Onboarding screen seen in Figure 12. Onboarding screens are common practice within the rollout of web/mobile apps. Onboarding processes may take several different forms within interaction design, all with the goal of helping the user to understand the functionality of the interface. These hints ease the tension of new users navigating away from the site/app out of frustration or confusion. An example of an onboarding feature could be a flashing arrow pointing to a navigation link or function icon with an accompanying explanation. This “signposting” method is often optional,
however in some cases the site/app will not function without completing the series. Figure 13. shows an example of Pinterest.com onboarding screen. The screen welcomes the user and gives an example of how a possible user might interact with the site to bookmark running gear that they like. This example helps the user by previewing the purpose and functionality of the site. Onboarding presents a logical step for designers and developers to explain their artifact, but on the other hand it can set a condescending tone for users who feel comfortable exploring the site/app on their own. In the case of Symmetrical Speech the user is greeted with a short explanation, “analyze the text through exploring the semantics of synonyms.” Users can quickly click off from the module while still obtaining the broad intent of the site. The choice of using a rhetorical device in this way prepares the user while still leaving room for discovery due to the contents lack of specificity in how the exploration is facilitated.

After closing the onboarding screen the user is immediately presented with the text from the speech. The overall interface is presented with a minimal design in order for the user to focus on the text. Google Font Work Sans, designed by Wei Huang, was chosen as the only typeface used on the site. Work sans provided a generally neutral and versatile typeface that would not carry additional connotations for the non-designer. As a principle all of the aesthetic choices reflected a simple directness as not to detract from the activity of interpretation.
The simplicity of the design is intended for the user directed discovery. When the user hovers over one of the fourteen key terms the word transitions color to denote functionality as seen in Figure 14. Upon interaction the word subsequently appears temporarily crossed out with a following list of possible replacements at half opacity. When the user chooses to select one of the alternates, it replaces the source text and appears at full opacity. If the user would like to explore a different option, they are also able to: hover the replacement term, interact to display the range of options, and alternate choices. An important aspect of the design was the seamlessness of the editing process. Though the cyan color is used to denote the original text to user while hovering, the alternate text after being selected by the user, appears the same. This decision was a conscious choice to facilitate a point of tension for the user to visually integrate their choice with the source material. The heuristic of contrast shows the user a near equal weight of importance on the terms which raises the key question of how flexible the meaning attached to the text really is.

**FIGURE 15.** Symmetrical Speech secondary functionality

**C. Secondary.** In order to provide the user with a further opportunity for insight through reflection a “visualize” state was designed to show the user what terms they have changed. When utilized the user chosen text appears underlined, while the original text fades to half opacity.
This shift in visual language reframes the interaction through bringing the user's choices to the foreground of the interface. In addition, the user may open a panel for annotation where they are able to compose a written reflection concerning how they chose to interact with the text. These secondary functions allow the user to further understand the text and more importantly construct arguments based on their interpretation.

**FIGURE 16.** Symmetrical Speech tertiary functionality

*d. Tertiary.* Symmetrical Speech was also built with the possibility of becoming a tool for collecting qualitative data from groups as well as individuals. A short four question survey was created as a companion piece to primary experience. The questions range from strategy directed inquiries to aspects of functional barriers. Typeform presents a functional and usable interface with navigational cues. Each response is submitted to a database where the answers can be compared. A user can also easily print their edited version of the speech. This function allows a group to all participate in the editing activity and subsequently compare responses. In addition the functionality of printing a document translates and preserves the experience in an analog medium.
### Approach to User Testing

User testing for the prototype was conducted in three phases throughout the development of the prototype. The first phase was held within a workshop setting with design oriented graduate students. This phase allowed for a broad system of feedback due to the variety of backgrounds represented among the sample set. Due to this group holding a knowledge base in critiquing the visual interface, the general feedback resulted in a refinement of the styling and usability. The key clarification from the initial phase of testing resulted in a clarification of hierarchy through the use of color and strike-through. In addition the adoption module that instructs the user was added in order to direct a user with little to no prior knowledge of the interface and its purpose.

The second phase of user testing was held with a more formal approach in mind. Feedback was collected from academics within humanities fields. The participants represented disciplines including Literature, History, and Communication. Each participant held an advanced degree as well as experience in classroom settings. This group represented my target audience as ideal candidates who would use a fully developed version of a digital tool in the course of their personal research or teaching methods. Each session was held as an individual interview while using the Symmetrical Speech Beta site. In order to record the sessions Quicktime was used to record both the on screen behavior of the participant and the participant’s vocal response to the activity. In accordance with the reflecting a constructivist perspective of situational knowledge and complex nuance, the interviews followed a general order without constraint to a strict pattern. This form allowed participants to respond naturally to their experience without forced coaching. Example questions included the following: how does this activity reflect the nature of language, why did you choose to edit the text in that way.

Ideals form directed storytelling were also adapted to further direct testing sessions.
Directed Storytelling is a form of ethnographic research created by Shelley Evenson, which places the participant in a narrative situation in order to better understand user patterns (Evenson p. 239). Directed story telling became helpful in encouraging participants to speculate concerning the possible application of the prototype to their own context. By contextualizing the possible future applications of the prototype participants were especially able to draw out how students might engage with and respond to the tool. According to Evenson’s her approach is best used when a behavior can not be directly observed (p. 233). In the case of this investigation direct classroom application was outside of the initial scope of the prototype. Nevertheless, common themes emerged among participants throughout the sessions.

A third round of testing was also held with undergraduate student participants. User testing this population examined some of the underlying assumptions that were developed by the prior educators in the prior phase. During the session the students were able to interact with the Symmetrical Speech prototype. They were also provided with the opportunity to provide feedback on their experience through a group style interview. While the students were directed to comment on the theoretical nature of the interface, they were also asked to speculate on the possibility of future applications.

Chapter V

Findings

User testing revealed several common themes among the participants. Broadly the sessions were successful at generating a reflective dialogue in which participants engaged with the conceptual framework presented by the interface. The participants will be titled with aliases for the purpose of preserving privacy.
**Participant 1 (P1).** Participant 1 specializes in modern American history. As a result the session with Participant 1 included additional context surrounding King’s speech as well as an orientation of preservation with the text as true to the historical record. Thus at first, Participant 1 struggled to change the text due to the cultural relevance of the speech. With further inquiry they explained that from the perspective of a historian there must be a “justification for clarity”. This statement led to the topic of translating a text that is already in a native language. They agreed that certainly we live in a different context than the original speech; however there must be a theoretical basis as a whole for the changes being made. Participant 1 explained that one could take a “literal or dynamic approach to editing the text”. A literal approach meaning the user would use synonyms that correlate on a direct or one to one basis; while a dynamic interpretation would capture the thought or spirit of the source text in the choices that are made. Overall, they responded with the value of the activity to “reveal preconceived notions”. Participant 1’s sentiments reflect the design intent of the interface to inspire a critical posture towards interacting with the text with the ability to integrate theoretical models into the activity.

**Participant 2 (P2).** Participant 2’s field is language and translation. This perspective demonstrated sensitivity to the nuance of words differing connotations and linguistic constructions. Participant 2 echoed Participant 1’s concern for context with the response of questioning “how would Martin Luther King say the speech today”. By the nature of the chosen text politically oriented concerns were raised in each of the sessions. Participant 2 remarked that an accurate substitution for King’s choice of “this nation” could be “those who live in our country”. The consequent shift in language being reminiscent of the current political struggle over immigration. Participant 2’s discussion concerning the merits of editing the text in this way again reflect the interface’s ability to show user’s ideals.
**Participant 3 (P3).** Participant 3’s focus is in classical British and American literature. Participant 3 responded positively to opportunity to exchange terms with the body of the text and readily compared synonyms. Participant 3’s feedback centered on how they would use Symmetrical Speech in a classroom setting. They explained how with the inclusion of tablets and devices in many schools students would be able to separately edit and subsequently compare versions of the speech. This would allow both the educator and students to better understand “how they personally respond to the text”. This feedback in conjunction with Participants 1 and 2 furthered the category of a reflective tool for not only individuals but also groups as well.

**Participant 4 (P4).** Participant 4’s research trajectory includes how people construct forms of communication within societal groups. In response to the interface they displayed a particular emphasis on critiquing the problematic tendencies within the provided synonym choices. In this process much like other participants they connected individual terms to broader historical and social movements such as women’s rights. Participant 4 also noted the value of using an activity such as Symmetrical Speech in a classroom setting to “analyze text in a critical way”. However they saw the interface as negative apologetic, which points out the larger scope and consequences of how people use language. Participant 4 pointed to the phrase “all men” as a tangible example, explaining that this construction could become problematic not only for women but those such as minorities who were also not considered men at the time of the quote’s authorship. Participant 4 believed that as a result the interface makes intangible ideas visible to students who may not have a high level of critical awareness.

**Participant 5 (P5).** Participant 5 teaches creative writing in addition to actively researching the field of semantics. Due to their background some of their response centered on the differe-
ence between using a digital tool in comparison to pen and paper. They described how a digital tool could replace an analog process, but it has to add to it some way. In relationship to Symmetrical Speech they believed that it added to the analog process in the sense that a person was able to very quickly and fluidly iterate and edit the text. This feedback was helpful in reinforcing early assumptions concerning the value of a digital interaction for a simple analog process. When asked to speculate concerning how the tool could be used with students Participant 5 also outlined the importance of recognizing the differing personality types within students. On one hand there may be students who relate to forming meaning through “fixing” and others who will be “creating”. The fixing student may only see a singular meaning in the text that they relate to while the creating student may be more willing to explore a range of response. In their experience they reflected on how it’s important to coach both groups of students through exercises. This served as an important reminder to consider how the supporting context in which a student would participate in such an experience plays a critical role in the interaction.

**A Common Theme Across Participants**

Overall Symmetrical Speech as a prototype proved to be successful at providing each participant with opportunities for reflection. While each participant focused on varying dynamics of the project, one defining common theme emerged across sessions. All of the participants in some way addressed the “sacredness” of the text. The word sacred undoubtedly invokes a religious overtone. However, the participants did not use this convention to refer to MLK’s speech in that way. Participant 2 used the term sacred in regards to the text’s “cultural significance”. Similarly, Participant 1 described the weight of the text’s “authority” and “tradition”. Thus the participants are using the term sacred to place significant value on the original text. These remarks bring to the surface the possible postmodern quality or struggle of the activity. In the words of Participant 1,
“the whole thing is very postmodern because it allows you to write your own interpretation, which is what I think it means, is equally important as what Hemingway (an author) meant.” By placing the meaning of a text squarely in the act of reading there is an undoubted danger in what Participant 2 qualified as “spin and agendas”. On the other hand Participant 4 remarked on multiplicity of definitions ability to “hedge meaning” around the text resulting in more flexible models of communication. This divergent perspective argues that even with the burden of context a reader can never completely access an author’s intended meaning. Thus the text itself does not carry an inherent meaning. Whichever side of the philosophical spectrum a possible user falls, the positive result of this type of conflicting feedback is the ability of the user to form an argument through using the text. The act of forming an argument reaches Burdick’s earlier referenced third stage of meta, “at the level of digital affordances, subjects should be able to perform research, compose arguments, and engage peers, cultural records, discourse networks.” (Burdick pg. 30) While the prototype does not achieve every point of Burdick’s criteria, it does attain the ability to create a critical orientation.

Identifiable Gaps Within Initial Prototype

During user testing sessions participants were encouraged to critique both the theoretical framework underlying the prototype and user experience. In the case of further iterations of Symmetrical Speech the following affordances would be addressed within the design of the interface.

Affordance 1. While using the interface Participant 2 described discomfort with “the lack of ability to see what you changed”. This lack of transparency is intended on the part of the investigation to provoke critical thought. By not granting access to the original text without using the reset function, which complete restarts the activity, users are forced to evaluate the merit of their choices. However, it is understandable the not being able to see the source text may create unnece
sary confusion or frustration. Participant 4 also reflected this concern and offered a viable solution saying that, "it would be good to see the original as a side by side." In providing this function through a toggle state users would potentially be able to gain a deeper understanding of the text.

**Affordance 2.** Participant 4 expressed the desire to write in user generated synonym choices. This functionality was strongly considered in early phases of the prototype, however it was eliminated after the initial phase of general testing. Several early participants exhibited a strong aversion to adding text directly to the source material. One possible conclusion could be that selecting pre-generated options presented a more simple choice. Another reason could reflect later participants regard for the text as sacred. No matter the positions both involve a lack of potential creative outcomes for the user. As a result a user may feel limited in the message that desire to convey with their interpretation. A simple solution to this response is adding the functionality to edit words of the speech directly in order to give further control to the user. Participant 4 also raised this user need to accomplish the addition of qualifying statements thereby adding additional clarification for the user's choices.

**Affordance 3.** The final enhancement to the interface would address the larger information system and archive supporting the interpretive activity. Due to the classroom experiences of the user testing group didactic applications for Symmetrical Speech were also discussed while exploring the interface. As mentioned earlier participants expressed interest in further applications of the prototype with both secondary and undergraduate students. Participant 1 described situations in which the ability for students to see alternative synonyms could “grant access” to a difficult text for students. Thereby students reading a text from an earlier time period or unfamiliar context could compare the text in more plain language.
In order to make these types of activities possible one would have to possess linguistic knowledge surrounding HTML, CSS, and jQueery in order to replicate Symmetrical Speech’s interface from a source such as GitHub. In this scenario the code for the site is made available in an open source format providing a wide latitude of flexibility for users to input and adapt the text of their choice in a digital form for their students to interact with. Many designers and scholars have pointed to the ability of open source technology to advance and identify uses for products beyond the original intention of their creators (Ratto, 2011). Following this attitude, depending on the skill level of the user they might be able to create additional functionality to address the needs of their own specific contexts. In this way the user could perform not their own cycle of prototyping and development that responds to how their students use the interface. The ability to activate users to develop their own types of critical design stemming from existing artifacts can be seen as an enduring benefit of open forms of design (Ratto, 2011). While this first perspective provides a valuable opportunity for users to mold the initial prototype, it falls short of supporting those who may lack the necessary skills to develop their own iteration.

An alternative solution which address both the need for users to input text without a knowledge base in HTML, CSS, or jQueery could be the full scale development of a web applica-
The proposed web application would allow users to create and store their own texts. By way of analogy one might look to a web app such as quizlet. Quizlet offers users a digital notecard system where users are able to personalized sets of terms and definitions for studying, which are saved to a user’s profile. In an expanded web app version of Symmetrical Speech users would also be to create interactive versions of user inputted text with the ability to host their texts via an online profile. This second approach would allow for maximum access to Symmetrical Speech as a tool to the widest audience, however the major consideration on the other hand is the considerable cost of resources required to create a web app of quizlet’s scale. A possible middle ground could be the development of an IDEO style toolkit. IDEO famously developed “Design Kit”, a web based resource that explains mindsets, methods, and case studies for human centered design. Design Kit includes inspiration videos where professionals explain their approaches to design with tangible examples of their results. The site also provides short form literature which explains the different techniques in non-technical language. In addition, the site also gives step by step instructions for a research to follow while in the field. While Design Kit is a robust example of making a resource available to users, it offers a tangible reference of the formats value. In the case of Symmetrical Speech, literature could be created to explain the theoretical basis for subjects such as Critical Making. In following Design Kit’s template step by step instructions could also be created to inform the technical development of the tool as well as its application in real world settings.

Affordance 4. The final direction for the prototype centers on Symmetrical Speech’s community application. Participant 3 described a situation in which it would be valuable for students to provide feedback on each other’s interpretations. In Participant 3’s secondary educational setting each student has access to a Chromebook computer. In this context students would be able to digitally share and subsequently comment on their peers edits. The ability to share their perspectives
and provide feedback would allow for more opportunities for critical analysis. The affordance for community feedback could possibly be handled in the second and third solution for affordance 3. Within both a web app online resource site discussion boards could be created with threads would be attached to a user’s “interpretive” post.

**Classroom Setting User test**

As discussed prior, students were also given the opportunity to interact with the prototype. Through user testing with the academic participants assumptions were brought to light on how the prototype might be applied in a classroom setting. The students participants provided an introductory sample set for better understanding the viability of the prototype's use with this population. The student participants were selected within the school of Visual Communication Design, a studio intensive program. This meant that they might not have had previous exposure to critical analysis. While the student participants may not have possessed the technical language to express the theoretical side of the interface, they were able to grasp the reflective nature of the activity. As a group their responses tended to focus on how the flexibility of the interface allows a person to personally relate to the text. One participant expressed this idea in terms of being able to “invest in the text myself” through making edits to the source material. Another participant described the process of editing as “adapting the text in your story”. The group further discussed how making a text more familiar by translating it into the current context might affect the consequent meaning. When asked to characterize the interfaces use in a classroom setting a participant specified the prototypes use a feedback mechanism. The student explained the adage of reading comprehension through paraphrase or “putting something into your own words”. In this instance the student expressed the ability to personalize the text to determine if they deeply understand the author’s ideas. Overall, the student participants were much less hesitant to manipulate the text compared to the
academic users. The student’s saw the activity more as a creative endeavour in which they are able to explore the text as malleable rather than a tightrope of Sitz im Leben to parse.

Chapter VI
Research Implications

In order to clearly organize the effects of the investigation personas have been developed as a summary tool. Personas are fictionally based characters that abstractly represent specific user groups or target audiences (Miaskiewicz & Kozar, 2011, p. 418). When personas are developed they are often given a name, age, and representative picture. While these steps can be valuable, they appeared distracting and superfluous to the purpose of this investigation. Studies have shown that personas provide designers with a sense of focus on the end user throughout the design process (pg 427). As a result future researchers may posses the following considerations as a starting point in how they might employ a similar design approach. The personas in this investigation are based on two actions or stances towards the interface. Based on the user testing feedback, users could either use the interface as a method of personal investigation or qualitative data collection.

Persona 1: Humanities Researcher. Persona 1 will use Symmetrical Speech for personal investigation as a reflective activity to see into a text. It is not the position of this investigation to abolish all quantitative analysis of text through computational tools. Quantitative tools provide valuable insights into a text. They allow the user to identify broader patterns within the text that can point to significant constructions and uses of language to the author of the source text. However, while a quantitative rendering may identify “what” for the user, it does not provide affordances for reflecting on “why”. For Persona 1 it is important to decipher human responses to text, as no
text can exist independent of the reader’s context. Symmetrical Speech may allow this user to engage in seeking to make their interpretations a visible response to source material.

**Persona 2: Humanities Teacher.** Persona 2 will use Symmetrical Speech as a way of collecting qualitative data from a given community. The rigidity of Quantitative tools does not provide opportunities for users to participate in rendering an analysis. The strength of Symmetrical Speech as a Qualitative tool is the multiplicity of results, which can lead to a dialogue comparing the range of versions. One example of persona 2 could be a teacher who seeks to understand how an English class interprets a poem through a participatory activity. In this way the activity functions as an indirect type of survey. The survey would result in a deeper understanding of the student’s perspective for the teacher. In turn, the teacher will be better prepared to address emerging patterns of thought or ideological views of the text.

**FIGURE 18.** My Dad Is interface created by Timothy Goodman retrieved from http://mydad.12kindsofkindness.com/

**FIGURE 19.** Balloons of Bhutan interface created by Jonathan Harris retrieved from http://balloonsofbhutan.org/
Persona 3: Participatory Designer. While the primary focus of this investigation has centered on academic settings, Persona 3 can still use Symmetrical Speech as a means of constructing a participatory design. Participatory design is a creative approach that relies on user-generated content to create the designed artifact (Armstrong & Stojmirovic, 2011, p. 11). Participatory design can take many forms. Some designers utilize this technique to collect thematic content, develop ongoing archives, or research unfamiliar populations (p. 12). There are many current examples of designers using their platforms to discuss social issues through the responses of their audience. In many cases these types of archives are collected through a centrally posed question. For instance design iconoclasts Timothy Goodman and Jessica Walsh created “12 Kinds of Kindness” where they share personal stories and encourage others to share their experiences of emotions as well. On one area of the site users are posed with the statement “My dad is...” as seen in Figure 17. Users are then able to respond in any way they choose. While this open ended type of feedback provides an extreme latitude for possible responses, it can also be perceived as unfocused or overly topical. A second example is “Balloons of Bhutan”, a participatory project by Jonathan Harris. In Figure 18, one can observe the archive Harris created by interviewing over a hundred Bhutanese people on the topic of happiness. Participants were interviewed in addition to having a written response transcribed onto a balloon that was later used in a traditional religious ceremony to honor the local population. Again this project displays a deep sense of purpose through the inclusion of a wide range of participants. However, much like Goodman’s project the wide ranging responses to heavily open ended questions could possibly relate to a lack in ability to closely compare participant’s responses. In using the model of Symmetrical speech a designer could focus and control the type of feedback that the audience could provide by basing the submission on an original quote or text. In addition the designer would also be presenting an opportunity for participants to engage in creative activity through the construction of editing the text.
Participatory design is also often used in environmental design to facilitate visitor interaction in an exhibit space. Figure 19. above displays Norwegian Museum of Technology's exhibit titled TING. In the exhibit visitors are challenged to think about how different technological advances have facilitated or harmed values such as freedom of speech and environmental policy. As a part of the exhibit visitors are able to pick up a wooden block that can be used at the exit to contribute their opinion to three receptacles for responses. While this is a valid way for the curators and designers to gain feedback from visitors it can also lead to a limiting scope of how visitors can respond to the prompt. In this type of setting a tool in the style of Symmetrical Speech could provide a way for users to deliver feedback that is open to a wider range of responses and meaning.
In reference to Goodman’s earlier example, Symmetrical Speech provides a more confined system then an open ended question, while in this case still allowing users to form personalized and unique responses. Figure 20. displays a more expressively oriented exhibit. Within “What Made Me” participants are able to wrap colored yarn around posts to make a word map of connected ideas to represent what made them the person that they are today. While this exhibit does create a qualitative visualization of data, it becomes difficult for the viewer to interpret and compare contributions. The unconventional nature of how the visitor participates in a creative act is valuable, however it may lose value in the inability for it to be individually distinguishable. In comparison, if responses in the style of Symmetrical Speech were displayed visitors may be able to more easily compare responses based on a prior knowledge of the source material. In both cases the interaction exhibit generates value for the visitor through a participatory activity, however Symmetrical Speech as a system may however provide an alternative textually based approach.

**Intersectionality**

In awareness of farther reaching and related areas of design it is believed that the results of this study could also be of benefit to the practice of product/industrial design technique, “slow design”. Slow design can often be mistaken for an approach that directs a user to use a product at a literal slower pace (Grosse-Hering, 2012, p. 6). Instead designers ought to provide ways for users to make conscious choices that invite understanding of process. This can relate to both the automation and opaque quality that many of the products we use posses. These products are intended to increase efficiency by limiting the amount of thought required to use them (p. 6). In response, designers have sought to develop ways to invite users into increased observation and deeper un-
derstanding. Faud-Luke and Strauss have proposed principles such as: revealing expressions of an artifact beyond its perceived functionality, inducing contemplation rather than consumption, and presenting a transparency of information that encourages a collaborative evolution of the product over time (Strauss and Faud-Luke, 2008). Studies have shown that a slow design approach can help users’ enjoyment, attention to detail, and creativity (Aliakseyeu, Bakker, Desmet, Grosse-Hering, Mason, 2013). The aforementioned principles strongly parallel Digital Humanities values and critical making goals. It is conceivable that future research pursuits could include investigations that seek to incorporate slow design as a knowledge base for design strategy in order to create artifacts that encourage critical reflection.

Slow design also shares commonality with “slow reading”. Theorists propose that the state of contemporary technology facilitates brevity and rapid paced communication, thereby changing how many people read (Strauss, 2011, p. 146). The use of text on social media platforms such as twitter and facebook or the ubiquity of text messaging typifies a focus on short selections that are quickly read. The result of this style of reading is a lack of comprehension and an inability to remember pertinent content (Love, 2012, p.4). Through slowing down how people read they might both enjoy the experience of reading more in addition to increased ability to interpret the content that they read (Newkirk, 2010). In the same way that slow design implores participants to intentionally participate in a given activity, slow reading also encourages the reader to not simply look at the words but rather see the meaning in the text. Therefore, obvious connections could be explored in understanding how slow reading, a psychology based field of study, could be understood in the context of an interactive tool. When interacting with Symmetrical Speech users read the text more slowly due to the text as a point of interaction. In making choices to edit the text they are partici-
pating in an active experience to shape meaning. Slow design and slow reading both present areas of exploration akin to the reading experience formed in Symmetrical Speech. With additional study there might be inspiration, reference, and foundation from the disparate areas' overlapping commonalities.

**Limitations and Directions for Future Research**

It is recognizable that the limited scope of this investigation leaves much room for exploration within the realm of text analysis in a digital space. The instantly recognizable and contemporarily relevant “I Have A dream” speech allowed participants near instant access in exploring a critical framework. However further research must be conducted to better understand how users might interact with a far less recognizable text. There is also value in exploring a different form of text such as poetry, which is more commonly accepted to possess a subjective essence by classification. Additional exploration could also follow the recommended affordances outlined in chapter 3. This comprehensive development would allow for researchers to test the speculated functionality and as a result differing applications of Symmetrical Speech as a tool.

**Conclusion**

“What does it mean to be a designer today (and tomorrow)? It’s not about these things (apps, screens, devices) although it might involve them. It’s about these, it’s about embedding, embodying, and enacting not artifacts but actions. Being a designer is no longer about what we make but about the worlds we make possible.”

(Anne Burdick, 2016, Span Google Design)
In its broadest form design has grown beyond a discipline of artifact creation to a practice of intellectual pursuit through investigations of theory, form, and research. Burdick’s quote alludes to the vast possibilities that are set before designers. She cites that a designer’s role in our society is not to focus on understanding artifacts, but rather the actions they facilitate. By way of analogy, this means that Symmetrical Speech is concerned less with the digital medium, while the form of interaction is critical as a vehicle to deliver a conceptual framework, and more importantly obliges a critique of the very nature of language and meaning itself. Thus hopefully this investigation has provided a tangible example of how one might use a digital medium to approach humanist tasks that value nuance, subjectivity, and situational knowledge.

Participant 4 pointed out that underlying assumptions in language structures our view of the world, and that furthermore we as people are in control how language is used. Through critiquing people’s use of language researchers, teachers, and designers alike are able to critique how people understand the world. Thereby resulting in Bradzell’s “critical consumer”, one who is able to acutely question their environment and the tools that they use to shape them (Bradzell, 2013, p. 3298). As access to technology increases and the ability for the average person to prototype interfaces and systems becomes simplified critical consumers might also then become critical creators.
Reference


