

North Carolina State University

College of Design

Master of Art and Design

Enhancing Reading Comprehension Skills through the Graphic Novel Medium

An Experimentation on How the Design of a Literary Graphic Novel Can Support and Help

Users with their Reading Comprehension Skills

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Abstract

This project focuses on enhancing reading comprehension skills using the construction elements of the graphic novel medium by transcribing a literary story that has yet to be visualized. Traditional literature in education uses mainly text however visuals are being used more frequently in everyday materials such as textbooks. The transition of society is becoming primarily visual and the need to become visually literate is more of a necessity. Remediation is the act or process that involves improving the conditions of its predecessors. Books have been adapted into non-text forms such as audio, film, animation, and plays. According to the National Council of Teachers of English/International Reading Association's standards for English language arts, reading comprehension is best practiced using multiple tools because the preferred learning style of individuals vary. As books continue to be remediated the graphic novel medium has been gaining popularity and slowly being accepted as more than just a tool for entertainment. Therefore, this project helps readers improve their reading comprehension skills by the page compositions used in graphic novels.

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Introduction

Reading is a skill needed for real life everyday tasks such as understanding directions or reading a menu. Schools have always emphasized the importance of this skill because developing the ability to comprehend material being read is essential. For individuals who are not interested in books the struggle to read followed as the selection of literature became more narrow and strict. In other words, schools would have programs that would be aimed to help encourage their students to read, however, these guidelines often constrict the freedom of choice resulting in putting pressure on the student. If the development of reading comprehension skills happens from the practice of reading, why limit the types of books being read? Just like there are many types of books – traditional novels, plays, and poetry – graphic novels are unique tools that are effective in promoting literacy. Dependent on the individual, comprehension skills vary and learning styles are diverse. The importance of traditional books is their use of language. These books often are all texted and have no images. According to the RAND Reading Study Group, the comprehension of language can be defined as the ability to understand the structure and units of a system to analyze the content (Cartwright 5). The reading comprehension skills this project will focus on are understanding vocabulary, distinguishing relevant information, finding references, drawing inferences, and summarizing (Davis 500). Understanding vocabulary means to comprehend the meaning of words and gaining insight on how words are used. By developing this skill, students can decipher the type of language used within a narrative based on the content and in turn construct expressions of their own. Distinguishing relevant information is being able to keep in mind which parts of the story are more important to understand the main idea or which parts are relevant towards the reader's goal. Finding reference is being able to determine which parts of the narrative has information that is imperative to remember to decipher a word or

context. Drawing inference is the reader's ability to connect various context together logically to deduce an 'implied' message based on the portrayal of a scene. The final reading comprehension skill is summarizing. This is the ability to find the main ideas of a novel seeking out repeated themes within the content to summarize the narrative.

Comprehending language is influenced by individuals' experiences and knowledge; with graphic novels, the reader goes through the same process. The only difference is that graphic novels uses both text and visuals. Graphic novels have visual construction elements to help readers enhance their reading comprehension skills. The introduction of graphic novels as another tool to practice reading is appealing to learners whose style leans more towards visuals. The purpose of this project to help enhance a reader's comprehension skills by the structure of graphic novels.

The components and definition of graphic novels are books that contain sequential images and text used to portray a narrative. They contain building blocks known as frames, panels, speech bubbles, and gutters (McCloud 66). Although these novels are slowly gaining more recognition for their importance as a reading tool, they continue to receive criticism. Visual literacy should not be overlooked simply because of the inclusion of graphics especially since they are tools that can be used for individuals to practice skills in reading. As Martinez mentions in her article *New Literacies for a New Era* she states, "...using visualization can help highlight key vocabulary words being taught in class or explore content and concepts as an extension of literacy development" (72). In addition, this statement puts emphasis on how society today has become primarily visual because technology continues to be remediated. To highlight some history and focus on books as a technology that has been remediated, they have been used since ancient times for storing and sharing information through writing in some form or fashion.

Books are considered one of the oldest and traditional forms for this purpose. The remediation of this tool has transitioned into many variants – from theatre, films, and audio – and the form of graphic novels was developed during this process. The unique aspect of graphic novels are the building blocks used to construct the layout of the pages; the visuals and textual elements combined are a necessary part of the storytelling.

An important factor to note is that the human brain has two hemispheres of the cortex, which are the left and right (Taylor 9). These hemispheres process information differently but are co-dependent on one another; the left analyses data logically and sequentially while the right analyses data visually (Taylor 10). Graphic novels use both of these hemispheres and therefore provides a necessary simulation for reading comprehension within the education system. This tool allows readers to analyze literature differently and reform the culture surrounding the perspective of comics. Graphic novels are still developing and experimental since the construction offers different ways to tell a story. There are also graphic novels that tackle important topics concerning culture and social issues. The literature used for this project is *The Comet* by W. E. B. Du Bois because this work has not yet been visualized, and it revolves around the topic of racial constructs which continues to be an ongoing controversy throughout history. The main emphasis of this project is designing a literary graphic novel by constructing the layout of the pages in a way that gives visual readers the opportunity to practice their comprehension skills.

Remediation

Remediation is all about improving the conditions of its predecessors and the remediation of print has been one of the most important (Bolter and Grusin 224). The outcome of remediation

gives new experiences to different types of interested individuals since they are given abundant options and considerations of mediums. There will continue to be value in remediation because the sole purpose is to use technology to implement easier ways to improve, share, and perceive information. In order to properly adapt and remediate, the goals of the media must be consistent with the goals of their users or viewers (Bolter 228). Within a literary perspective of the print medium, the purpose of books is to share narratives and improve literacy analysis. The ability to comprehend text coincides with an individual's learning style and knowledge. Taking into consideration a scientific perspective of this ability, the human brain has two hemispheres of the cerebral cortex, the left and right side. The left hemisphere deals with logic of linguistics and sequential analysis of data whereas the right hemisphere processes visual information (Taylor 9). Ultimately, both hemispheres complement and work together to comprehend material they are faced with. To further support this notion, Taylor mentions "the Bilateral Cooperative Model which says reading involves two parallel streams or "tracks" of interacting processes; which states the left track is analytic and logical while the right track seeks patterns and matching functions" (233). The brain is a complex structure where each individual processes types of information to their own capacity. There is value in using multiple methods to read and when students cannot learn the way we teach them, we must teach them the way they learn. By taking into consideration and understanding how the brain functions, the importance of remediation remains. Processing information occurs on both a linguistic and visual level, which is why the development of books have remediated into the graphic novel format; this tool uses sequential imaging which involves portraying narratives through the use of both text and visuals. English classrooms are slowly accepting this form as adequate and important content to read in order to expand their literature. Graphic novels are mediums that are becoming more recognized and

familiar; these works include *MAUS* by Art Spiegelman and *Persepolis* by Marjane Satrapi. The structure of graphic novels is a language in itself and this project aims to encourage the use of graphic novels as a tool and practice for reading comprehension.

Literature within a classroom is primarily all textual, which is why some perspectives toward graphic novels are negative and do not consider these tools of “equal status” to that of classic reading materials (Botzakis 60). But historically visuals have been used within writing systems like early hieroglyphics. Also, graphics have been used for teaching through textbooks within classrooms and instructional books. Visuals are tools that continue to be used especially within society today because of our technological advancements; the need to be visually literate is becoming more prominent (Martinez 72). Therefore, reading comprehension does not need to be taught without visuals. Graphic novels are mediums that use both text and visuals. There are studies that show controlling word length contributes to successful reading comprehension (Taylor 378). Depending on the style of the novel and narrative, many of these can contain mostly visuals and vary in the use of text. Another aspect that aligns with classic literature is that graphic novels are diverse in narratives. Although there are some heavy biases against graphic novels and books that have more visual elements to them, there are plenty of graphic novels created for the sole purpose of informing. Similar to how film has genres such as documentaries and non-fictional work, these mediums have genres that are not only entertaining but can range from historical to political topics. Graphic novels are unique because they are active mediums and tools that have and continue to help expand cultural knowledge (Chute 270).

Literature takes various forms (Schwarz 58). The interest of reading any genre or using any medium is heavily reliant on the interest of the reader. Graphic novels motivate reading because the pages are not overwhelmingly filled with only text and the visuals offer support to

help the reader follow along with the story, however this does not make the medium easier to read. Graphic novels offer a different kind of deciphering of text used alongside visuals.

“Because graphic novels involve a synthesis between the words and art, they must be read and interpreted in an entirely different way” (Heffernan 3). In other words, the ability of an individual to understand how the images and words work together tap into his or her deduction and inference skills. Since individuals process information differently the need to have a balance of different methods and tools is important towards reading comprehension development. The National Council of Teachers of English/International Reading Association’s standards for English language arts mentions the need for readings to address multiple purposes and to be practiced using multiple types of texts (Botzakis 60). Therefore, reading comprehension skills are dependent upon preferred learning styles. If students need visuals to understand a work of literature, graphic novels will help expand their knowledge and skills for future use in the classroom and everyday situations. Graphic novels visually showcase actions to portray a narrative and some are culturally influencing.

Literary Mediums

Being a story that has yet to be visualized and focuses on the topic of social constructs, the short story this project focuses on is *The Comet* written by W. E. B. Du Bois. The story’s genre is science-fiction based in the 1920s which touches on the topic of race relations. A comet hits New York killing everyone except for two individuals Jim, a black man, and Julia, a white woman. When the two characters are convinced they are the only survivors they are able to see each other as human beings with no social construct, but in the end, they discover only New York was affected by the comet. Considering this project focuses on a young age group of

fourteen and older, the depiction of natural disasters that portray death may cause concern for some peers, but students are selective with what they choose to imitate. However, this story does not glorify killings but demonstrates an unfortunate cause of death. A theme in the narrative does focus on how death does not discriminate. By adapting this work of literature into a graphic novel the reader will be able to connect these concepts since the most important aspect of this medium is gaining practice with analyzing how the images and text work together. Through the design of this project and getting the reader to grasp the basic structure of graphic novels, readers can be influenced by the construction of the pages and the use of sequential imaging. The building blocks and construction helps support an individual's ability to execute their comprehension of the narrative's context.

Graphic novels are considered a newer medium that is still experimented with and continues to develop. The notion that mentions graphic novels as experimental aligns with how the construction involves playing with 'time' in the same 'space.' The statement that directly correlated with this is with McCloud's *Understanding Comics* when he says, "time is spatial, for in the world of comics, time and space are one and the same" (100). Art Spiegelman the creator of *MAUS* describes the input of the pages of a graphic novel by commenting on the layout, "Those panels are each units of time. You see them simultaneously, so you have various moments in time simultaneously made present." The uniqueness of graphic novels deals with the building blocks that are used to construct the layout of the pages. Sequential imaging is defined by how the art panels within the pages are placed logically and consecutively giving viewers analytical scenes to read. They have unique components which make them compelling mediums for storytelling. As defined by Scott McCloud these features include frames, panels, gutters, and speech bubbles (66). Frames are the borders of panels that portray a moment in time. Gutters

are spaces between panels and are often left blank for the reader to speculate the scene in-between panels since they are connected sequentially. Speech bubbles are used for conversation and can convey certain types of meaning and emotion depending on the design. As previously mentioned just like textual literacy has its own structure, comprehending novels by using visuals is not that much different. Both parts of the brain's hemisphere work together to process information. By implementing design elements within the construction of this literary graphic novel, the project will support the readers execution of using their comprehension skills. The design elements are color, lines, forms, and textures. By keeping a traditional black and white achromatic scheme the use of other colors to highlight certain objects grabs the reader's attention to the specific item. Certain colors can be attached to reading comprehension skills as a mechanism for coding or labeling. Using bold lines or structuring can guide the reader throughout the page to control the flow and pacing. The focus of the reader can also be controlled by the amount of detail used within a visual. The brain views visuals as a whole. Forms are wholistic and the more dynamic or repeated a form is the brain can identify with these visual cues. Textures are details added onto objects to put emphasis on certain panels. These textures can often be repetitive which causes the brain to remember these visual cues and reference back to these details. By assigning certain signs or symbols as a label for a reading comprehension skill, the reader can focus on these elements ultimately causing them to think critically and interpret the information they are given. By using these methods and tools the students will be able to keep in mind the highlighted and more detailed parts in the narrative to make connections with other parts of the book; therefore, they will engage in deducting the relevancy of the construction of the text and visuals. Essentially, graphic novels are mediums that continue to be experimental and offer a wide range of narrative functions.

Project Process, Precedence, and Production

Two Hemispheres

The beginning of creating this project required research on how readers process information. How does the brain break down data and what are the variables? Are learning styles the same or different within individuals? What medium effectively utilizes the brain's functions? The brain has two hemispheres of the cerebral cortex. These hemispheres are the left and the right. The left hemisphere deals with logic like math, science and information in a linear sequence. The right hemisphere deals with data dealing with imagination and creative visuals. The Bilateral Cooperative Model within the research book *Psychology of Reading* states "reading involves two parallel streams or "tracks" of interacting processes. The left track of the brain is analytic and logical while the right track seeks patterns and matching functions" (Taylor 9). The brain has these functions to properly break down and process information. However, how much a person uses these hemispheres vary which is why people have their own preferred learning style. Not everyone comprehends books enough through only words and classic English literature is predominantly textual. The brain uses logical and visual cues, therefore graphic novels can appropriately emphasize the use of text and visuals which coincides with the way a brain regularly functions. Before finding a medium, the importance of figuring out what skills are needed for reading comprehension sits next in the hierarchy.

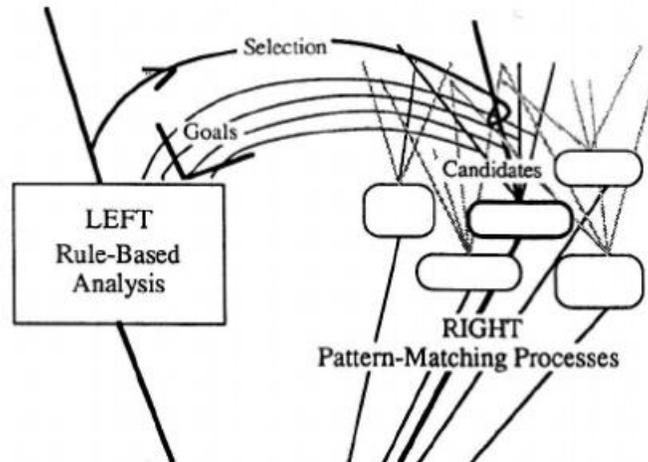


Figure 1. Taylor, Martin. (1988). *The Bilateral Cooperative Model of Reading*.

Reading Comprehension Skills

Comprehension skills are practices used every day by readers to analyze and break down reading material. Reading occurs on a daily basis whether the materials are books, street signs, or news articles. Reading comprehension skills are improved with practice and dependent on how much knowledge an individual has allows them to understand the content they are evaluating. The reading comprehension skills this project focuses on are understanding vocabulary, distinguishing relevant information, finding references, drawing inferences, and summarizing, which are mentioned in Davis' *Reading Research Quarterly* (500).

The first skill is understanding vocabulary which means to comprehend the meaning of words. Having this skill gives readers insight on how words are used. By developing this skill students can decipher the type of language used within a narrative based on the content and create writing expressions of their own. Distinguishing relevant information is being able to focus on which parts of the story are more important to understand the main idea or which parts are relevant towards the reader's goal. The next skill, finding reference is being able to determine

which parts of the narrative has information that is imperative to refer back to in order to decipher a word or context. Drawing inference is the reader's ability to connect various context together logically to deduce an 'implied' message based on the portrayal of a scene. Lastly, summarizing is the ability to find the main ideas of a novel seeking out repeated themes within the content to summarize the narrative.

The project focuses on these skills because they are primary techniques practiced during reading. By actively using a combination of these skills reading comprehension becomes easier. The more apparent and recognizable information is then the more effortless the comprehension will be. There are many variables that help readers improve their skills including motivation. All individuals have particular genres they like to read best and mediums are important factors to take into consideration. Within mediums the way a language is used or how the content is displayed influences how a reader interprets the context. By comparing and evaluating how literature have been remediated there is an understanding that the use of both visuals and text are great tools for reading comprehension.

Remediated Literary Works

According to The National Council of Teachers of English/International Reading Association's standards for English language arts, there is a need for readings to address multiple purposes and to be practiced using multiple types of texts (Botzakis 60). Readers need various works of literature that differ in genre and medium. Remediation is the act of improving existing tools to produce and give new experiences to audiences of interest (Bolter and Grusin 224). Time and time again books been transcribed into other media such as audio, films, or plays.

Remediation is dependent upon popular tools of the era's generation and here is a list of some examples of literature readapted into other mediums (Figures 2, 3, and 4):

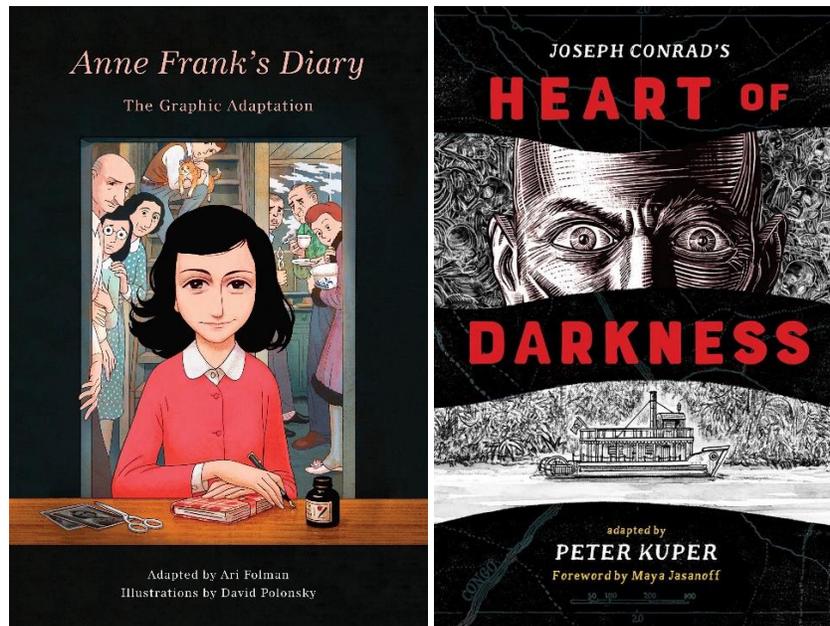


Figure 2. Literature to Graphic Novel: Anne Frank's Diary Adaptation by Ari Folman Illustrated by David Polonsky, Joseph Conrad's Heart of Darkness Adaptation by Peter Kuper



Figure 3. Literature to Graphic Novel: Herman Melville's Moby Dick Adaptation by Christopher Chaboute, Khaled Hosseini's The Kite Runner Adapted by Fabio Celoni and Mirka Andolfo



Figure 4. Literature to Film: *Apocalypse Now* (Based off of *Heart of Darkness* by Joseph Conrad) film directed by Francis Ford Coppola; *Watchmen* by Alan Moore film directed by Zack Snyder; *The Great Gatsby* by F. Scott Fitzgerald film directed by Baz Luhrmann

Some of the biggest precedents of graphic novels as literature are *MAUS* (1980 – 1991) by Art Spiegelman and *Persepolis* (2000) by Marjane Satrapi. These novels are considered documentaries that expand and inform their readers on the historical background of their subjects. *MAUS* portrayed the Holocaust with a metaphor by visually making cats the Germans and mice as the Jews (Figure 10). *Persepolis* uses a simple art style to not only convey her story for readers to easily follow but also depict images that may be unsettling like war to help her readers experience the scene through her perspective (Figure 12).

Graphic novels have and continue to be a tool used to portray and discuss important topics – some of which deal with politics, cultures, and social controversies. An example of this is *Judgment Day* (1953) written in the 1950s, written by Al Feldstein and drawn by Joe Orlando where an astronaut Tarlton lands on Cybrinia. He is tasked with evaluating the planet’s lifestyle to see if the citizens are qualified to bring back to his society. He sees the orange robots treat the blue robots unfairly and readers are persuaded to agree with Tarlton that the robots are not

developed intellectually enough yet to be proper citizens only to find out the astronaut is Black, which forces the readers to reflect on their own society (Figure 5).

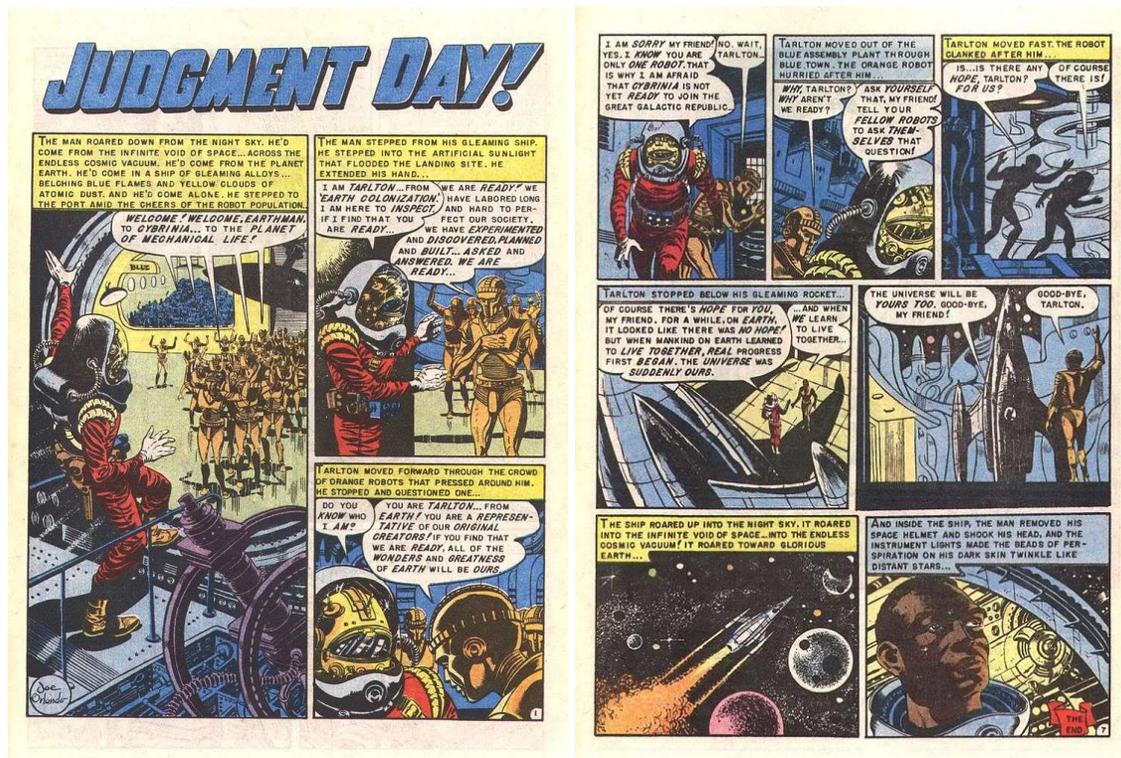


Figure 5. Feldstein, Al; Joe Orlando. *Judgment Day*. EC: *Weird Fantasy*, 1953.

Depending on the medium and topic individuals are motivated to read. Children’s books rely heavily on using both text and visuals which continue to be successful in this technological era. These precedents further support the value of remedial books and portraying narratives by using both visuals and text.

Graphic Novels as Storytelling Mediums

Graphic novels are books that contain visuals strategically put in certain sequential order along with text to portray a narrative. Graphic novels have unique components which make them compelling mediums for storytelling. As defined by Scott McCloud these features include frames, panels, gutters, and speech bubbles (66). Frames are the borders of panels that portray a

moment in time. Gutters are spaces between panels and are often left blank for the reader to speculate the scene in-between panels since they are connected sequentially. Speech bubbles are used for conversations and can convey certain types of meaning and emotion depending on the design. Graphic novels are great storytelling mediums because they offer various layouts. The medium is so experimental that each country has created their own terms and styles (Figure 6). Visual novels are nice storytelling mediums also because the artist can control the pacing of the narrative and guide the reader based on choices made within the construction of the pages. An example of a style this project uses is continuous scrolling; designing a page to scroll continuously versus turning the page is a technique which is popularly used in “manhwa” also known as Korean comics.



Figure 6. McCloud, Scott. *Understanding Comics: The Invisible Art*. New York: HarperPerennial, 1994.

Regarding the benefit of transcribing a work of literature into a graphic novel, the research that distinguishes the different ways individuals process information supports the development of this project. By assembling the data earlier this clarifies the fact that individuals have learning preferences and transcribing a work of literature into a graphic novel gives readers visuals that work together with the text to analyze instead of primarily tapping into the left hemisphere. Although the dominance of the left and right hemisphere differs between each person the brain uses them in cooperation. Graphic novels offer a different kind of deciphering of text used alongside visuals. “Because graphic novels involve a synthesis between the words and art, they must be read and interpreted in an entirely different way” (Heffernan 3). In other words, the ability of an individual to understand how the images and words work together tap into his or her deduction and inference skills.

***The Comet* by W. E. B. Du Bois**

Reading is an activity that continues to be practiced because of the huge impact on daily life. Specifically focusing on school, English classes require students to read certain works of literature. Not only to expose students to these relevant titles within education but learning vocabulary and gaining knowledge. There are a wide variety of genres and exposing individuals to many types of books is fundamental in reinforcing the importance of reading. There are many works of literature and as the audience gets older the recommended books get more complex in context. Not all literature uses the same language and the production of these works are heavily influenced by the time period of the genre.

Written in the 1920's this project uses *The Comet* by W. E. B. Du Bois. *The Comet* is an important literary piece chosen not only because the work has yet to be visualized but because

the narrative reveals the negative and unnecessary impact of social constructs. All throughout his works, Author W. E. B. Du Bois wrote to represent his political perspectives; he fought for race equality by portraying his perspectives through literature. As an American citizen born in 1868, he lived through the court cases Plessy versus Ferguson (1896) and Brown versus Board of Education (1954). These cases are important because they focus on racial segregation. Plessy versus Ferguson supported the notion “separate but equal” while almost sixty years later the court cases of Brown versus Board of Education opposed this verdict. The change these court cases had on the world was immense and caused a shift in acceptable interactions of society. Throughout time technology also took a transition and is becoming primarily visual. Within English classes in the present day Dr. Du Bois is an author that continues to be studied for his work and diverse literature.

W. E. B. Du Bois’ writing has varying levels of complexity and all readers have their own individual stats regarding comprehension skills. This project targets the minimum age of fourteen and older; during middle school years readers are making choices on their own to pick up books and a popular genre is visual novels. Creating a graphic novel of this short story would be great motivation for people who prefer visuals to learn and slowly the medium is being accepted into the classroom.

References

Print has been a primary medium used for writing, storing, and sharing information dating back to ancient times. From then on people have taken and reformed this media. The remediation of technology has developed into the graphic novel format which gave new opportunities for different types of learners to take interest in reading and to help practice their

comprehension skills. This project aims to use the construction elements of comics to enhance and help readers execute their reading comprehension skills. The references mentioned in this project emphasize how the project will be using these elements to influence how the readers will be affected. These references include design elements and choices that will be used for producing the art within the literary graphic novel. By using the elements of these references, the project will put emphasis and detail into the portrayal of certain scenes to push the reader to make inferences and conclusions that helps them deduce the author's message about the narrative.

The biggest aspect and characteristics taken from all graphic novels is the construction. Graphic novels experiment with time and space by using the panels to control the flow of the story. Depending on how the panels are laid out the reader is being guided by the author's intentions to control the perspective and timing. This project heavily uses sequential imaging to tell the narrative and set the pacing. A particular structure that deals with pacing that this project includes is portrayed in Manhwa comics, which are also known as Korean comics such as *True Beauty* by Yaongyi and *Oh! Holy* by Ahyun (Figures 7 & 8). These comics have a continuous flow because they are being read vertically instead of traditionally condensed. The project implements panels that are more separately laid out to create an easier flow for the reader to follow but also controls the pacing. The digital counterpart of this project fully utilizes this structure because the narrative is on a continuous page and the reader can drag the screen vertically to navigate. The continuous page also allows the reader to stay immersed in the narrative with less disconnections and interruptions.



IS MY HAIR
OKAY...?

HEY, I'M HERE-



YOU WANNA EAT
SOMETHING?

I JUST NEED
SOMETHING TO DRINK!
A LEMONADE!!

GOT IT.

Figure 7. Yaongyi. True Beauty. Naver Webtoon Corp. 2018.



Figure 8. Ahyun. Oh! Holy. Naver Webtoon Corp. 2016.

The Comet is a literary short story that has sharp negative tensions and the theme of the story has various dark scenes. *Sweet Home* written by Yongchan Hwang and illustrated by Carnby Kim depicts this story's theme assertively (Figure 9). This story's genre portrays the loss of life caused by a natural disaster. The sequence of the visuals portrays a boy coming to his family's funeral disappointed with finding out their banks did not have much saved and he does not have enough money to live off of. Within these panels the colors of the scene are desaturated to demonstrate the mood and intensity of the scene. The story puts emphasis on the characters which is reflected in the framing of the panels demonstrated by focusing on the main character, Hyun Cha speaking. This depiction causes the reader to feel the same emotions of the characters and step into the atmosphere because of their expressions. Speech bubbles are used for speaking but also has the power to portray emotion. Hyun Cha is distressed and angry as he shouts depicted through the sharp splattered shape the speech bubbles take, and another detail within this panel is the textured background that resembles a static television screen which causes the reader to feel nervous and sense the tension of his speech (Figure 9). Through the visuals the reader can infer that Hyun Cha does not care about his family members that passed away. The first visual cue is the blurring of the family's funeral space within the first two panels as if looking through Hyun Cha's perspective (Figure 9). The second is Hyun Cha's attitude through his speech which is informal and disrespectful, and his attire reflects his insincerity since he decided to not dress formally. The font of the onomatopoeia is also a visual cue that the readers can infer the disappointment and tension portrayed through these visual elements.



Figure 9. Kim, Carnby; Yongchan Hwang. Sweet Home. Naver Webtoon Corp. 2018.

MAUS by Art Spiegelman is an important reference because he uses metaphors and references to tell the narrative of the story (Figures 10). Spiegelman uses his graphic novel to portray the story of his father's experience as a Holocaust survivor. The Holocaust was a genocide or dictated policy to murder all Jews by the Nazi's who took over Germany. The biggest metaphor he uses is the predator and prey connection between cats and mice. Within his graphic novel Spiegelman uses cats as the Germans and mice as the Jews (Figure 10). By using this metaphor, the reader can understand the serious predicament of the characters because the situation involves life and death. Another imagery Spiegelman uses in his work includes the Swastika symbol that the Nazi's uses to represent their power and superiority. As these horrific events are being endured, the symbol can be seen embedded within his visuals to imply the tyrannical feelings placed upon the Jews. In an example that clearly portrays this use of imagery, Spiegelman shows his characters walking on a path, so by using visual cues the reader references back to identify that the path looks similar to the Swastika symbol. The additional use of text further reiterates the worry and agony the characters are feeling not knowing where they can go or be free (Figure 10). Reiterating on the unique aspect of graphic novels, the layout of a page in sequential imaging is another important aspect that can promote messages for the reader to infer. Within this page Spiegelman's father is strategically placed on the page to show his entire body "connected" through the panels (Figure 10). The way he draws this causes the reader to make a reference to his father wanting to "move forward" from his past. The visuals align to resemble his father on the bike and the circled frame adds to the emphasis of this reference since the circle is similar to a wheel.



Figure 10. Spiegelman, Art. *Maus: A Survivor's Tale*. New York: Pantheon Books, 1986-1991.

Concerning the color palette and scheme for this project the production is traditionally black and white, similar to the graphic novels *Persepolis* by Marjane Satrapi and *MAUS* by Art Spiegelman (Figures 11 & 12). Sticking to the black and white color palette makes the novel easier to read with no unnecessary deduction of color. This also enables the project to instill specific designs elements to the pages making the layout and shading more detailed. Since the objective of the project is to make the reader execute their comprehension skills this structure

will allow the reader to focus on the more detailed parts of the graphic novel. In addition to adopting the traditional black and white color scheme, the shading of this project will practice an achromatic color scheme. An achromatic color scheme uses white, black, and gray. Kina Kobayashi sticks to the traditional black and white scheme but uses minor colors to supplement in her work *My First Love Was a Beautiful Girl* (Figures 13). Kobayashi implements a monochromatic color scheme to add depth. By adding yellow to the last panel, the black shading on his face stands out casting a shadow and exaggerates the anger he is expressing. The text bubbles within these panels also emphasize the emotion of the characters (Figure 13). The advantage of using this color scheme gives the opportunity to use color on certain objects within the visuals to put emphasis on specific parts of the scenes for the reader to take note of. In other words, the objective of the project is to help enhance the readers comprehension skills. Using minor colors within an achromatic scheme will give readers support in activating and executing awareness of these scenes.



Figure 11. Spiegelman, Art. *Maus: A Survivor's Tale*. New York: Pantheon Books, 1986-1991.



Figure 12. Satrapi, Marjane. *Persepolis: The Story of a Childhood*. New York: Pantheon, 2004.



Figure 13. Kobayashi, Kina. *My First Love Was a Beautiful "Girl"*. Pivix Magazine. 2018.

The target audience for this project is middle school students or readers who are fourteen years old or older which is why a good reference to bring up is *American Born Chinese* by Gene Luen Yang since he uses a simple art style and clean line work (Figures 14). This allows the audience to easily follow the reading layout. Yang composes his visuals with the dominant figures as the biggest element in each of the panels to show what the reader should focus on in the hierarchy of the page (Figure 14). He also uses visual cues within the speech bubbles to show a different type of language used and bolds for the font when the character emphasizes on a part of the speech. Another visual cue he uses are sweat marks to demonstrate emotion (Figure 14). These design choices and repetitious cues create a type of language among readers of graphic novels. This allows the reader to better understand and comprehend the narrative. Therefore, implementing the building blocks of construction and sequential layouts supports the design elements and prompts the user to execute their comprehension skills.



Figure 14. Yang, Gene Luen., and Lark Pien. *American Born Chinese*. New York: First Second, 2006.

Storyboarding, Production, and Technology

By utilizing a combination of these references and elements the production of the literary graphic novel became smoother. The art style and characters are simple and clean allowing the reader to easily follow the page layout (Figure 16). The textual sketchy aesthetic resembles old media to remind the reader that the story occurs in an older time-period. Using an achromatic color scheme follows the structure of many traditional comics but also allows the use of other colors to act as a support or additional help for the reader. The project uses visual cues within the panels to emphasize and focus on certain items. Deciding which parts of the text to transcribe was essential to continue production (Figure 17). The reading comprehension skills chosen to visualize were inference and reference scenes. A help system was also created within the digital application to tackle the other three skills which are defining vocabulary, summarizing and finding main ideas (15).

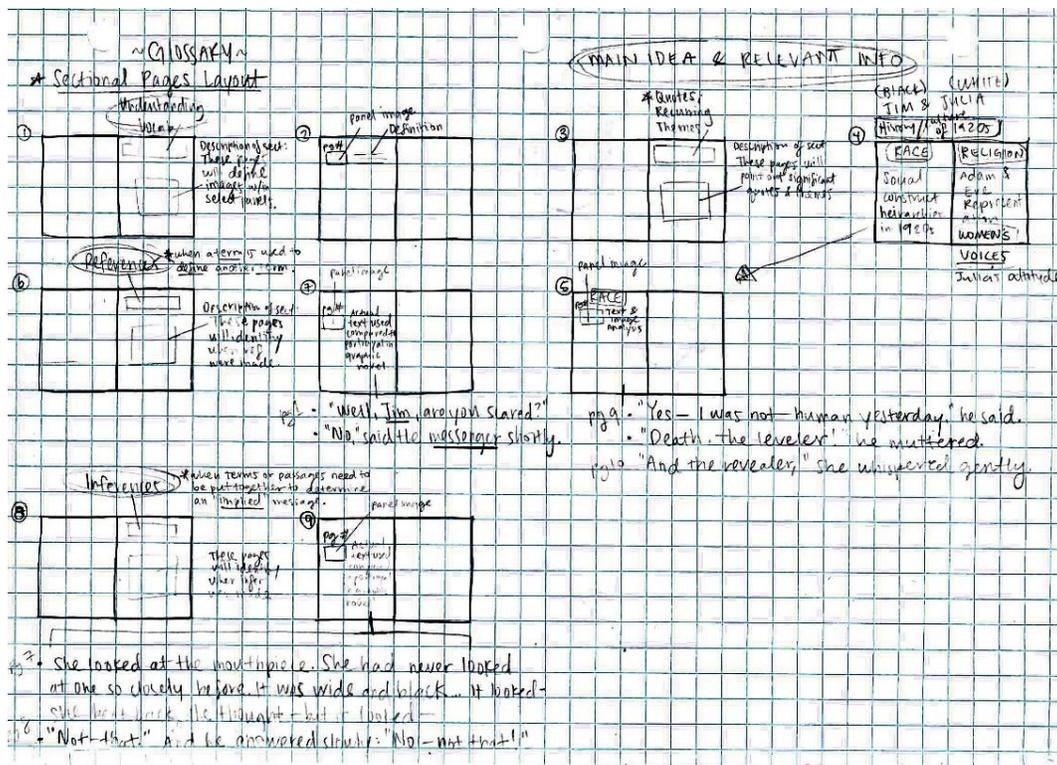


Figure 15. Process – Glossary



Figure 16. Process – Storyboarding Sketch: Characters



Figure 17. Storyboarding Sketch: Scenes

The first scene transcribed is the central telephone exchange. Within this scene Jim and Julia reach the central telephone exchange in an attempt to see if they can connect to anybody. During the scene Julia examines the headset and is horrified because the earpiece “persisted in looking like” something she imagines that causes her to be scared. Within the text Dr. Du Bois does not say exactly what Julia imagines, therefore this is where the reader must use their inference skills to figure out what this scene is implying.

The original text follows:

“She heard him moving to and fro, and knew his burdens—the poor, little burdens he bore. When she entered, he was alone in the room. The grim switchboard flashed its metallic face in cryptic, sphinx-like immobility. She seated herself on a stool and donned the bright earpiece. She looked at the mouthpiece. She had never looked at one so closely before. It was wide and black, pimpled with usage; inert; dead; almost sarcastic in its unfeeling curves. It looked—she beat back the thought—but it looked,—it persisted in looking like—she turned her head and found herself alone. One moment she was terrified; then she thanked him silently for his delicacy and turned resolutely, with a quick intaking of breath.”

The graphic novel helps the reader visualize this scene but also gives them imagery to support their execution of inferring the author’s message. I drew Julia in a sequence looking terrified by the sweat marks and lines under her eyes while she is imagining the worst-case scenario of her predicament (Figure 19). Julia’s expression is not too exaggerated but focused enough to pull the reader into analyzing facial panels (Figure 18).

The earpiece parts are the biggest focus of the page and the wires are placed strategically to outline and cast the illusion of a man’s genitals (Figure 18). The color on the headset and Julia’s expression are meant as hints to the reader that these are important to notice. The added

action lines circling the shading emphasizes the shock and bewildered feelings that Julia is expressing. These types of lines are applied to characters when they are in shock. This can also be seen in Kina Kobayashi’s *My First Love Was a Beautiful Girl* when the main character looks hopeless as he is on his knees and the action lines put focus on his misfortune (Figure 13). Carnby Kim’s work from *Sweet Home* also demonstrates emotion through the speech bubbles as the main character Hyun Cha is aggravated (Figure 9). When Julia looks back to see if Jim is in the room only to realize that she is alone her expression becomes soft and relieved as she mutters with a soft speech bubble “thank you” (Figure 18).



Figure 18. Process – Central Telephone Exchange Cuts

The second scene transcribed is the beginning page of *The Comet* which prompts the reader to connect the words and images back to each other to deduce what the words are referring to. Dr. Du Bois does not use direct words to define the subjects but he uses them in conjunction to one another and the reader has to use their reference skills to understand these terms. Within this scene Jim is at his workplace in front of the bank when the president comes he gives him work to go down into the lower vaults. The author uses the word “walkers” to describe Caucasian people because they differ from Jim in this society since they are people who are noticed. The text also refers to Jim as the “messenger” further emphasizing another word to separate him from the others. This word slightly diminishes his value as a person as if he does not have his own mind because he is forced to follow the judgment of whoever is a walker and relay “messages” from them. Being given jobs that are unpleasant and unable to decide which tasks he can or cannot take within his workplace emphasizes the lack of importance the walkers feel for him. Transcribing this scene puts focus on the character’s actions and demeanor. The constant change in Jim’s facial expressions shows he is conflicted mentally and emotionally by what is occurring and how they are treating him. The president is higher in hierarchy and is always bigger or taller demonstrated within the panels (Figure 20). The colors connect with the vocab and visuals to give the reader hints on what terms should be focused on and how they work together. The brightness also demonstrates importance and since Jim was forced to go down the vaults the darkness exemplifies consumption of his well-being (Figure 21).

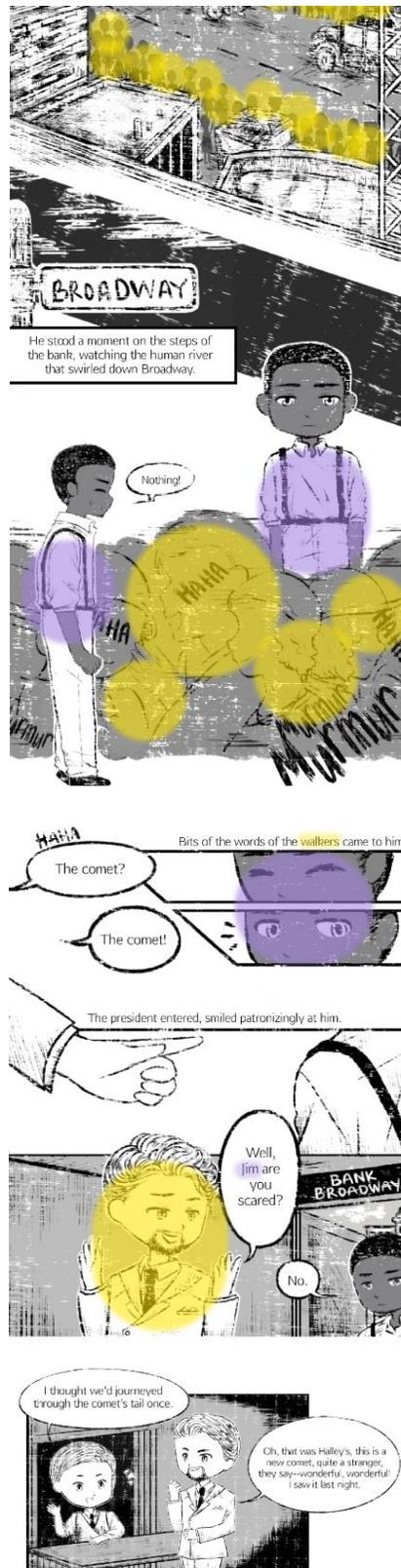


Figure 20. Process – The Comet Cuts

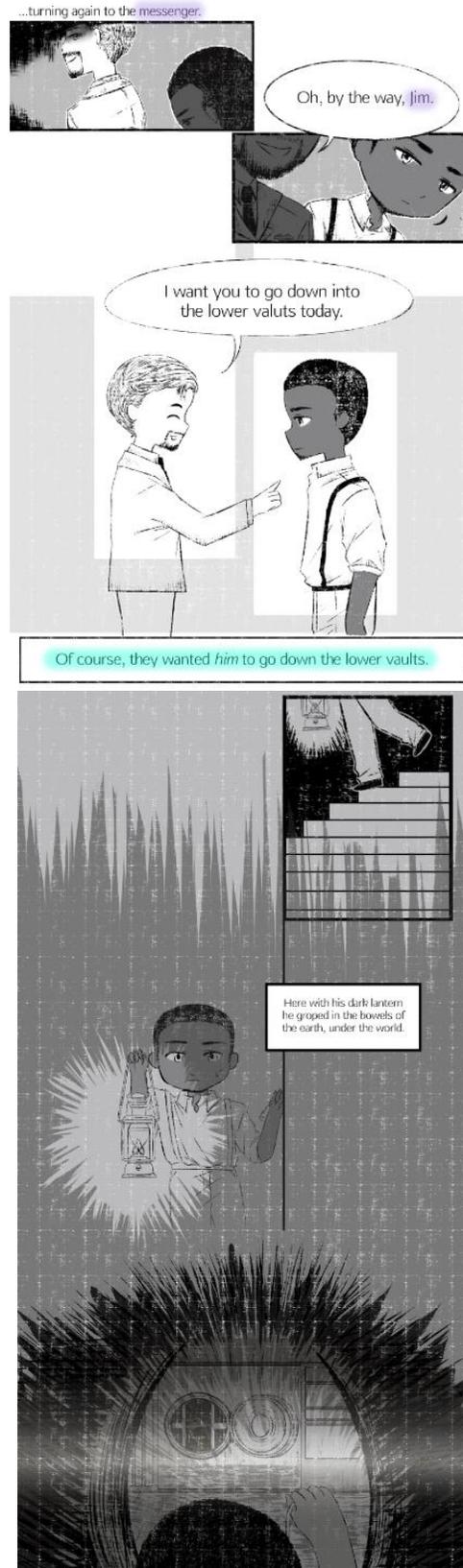


Figure 21. Process – The Comet Cuts



Figure 22. Process – The Comet Full

The technology used to produce this project were Paint Tool Sai, Adobe Photoshop, Adobe Illustrator, and Adobe XD (Figure 23). Storyboarding and sketching occurred on paper and transcribed digitally. Sketching on paper gave the freedom to experiment and create quick thumbnails. Paint Tool Sai is a digital drawing program and was used as the main tool for the art aspect of the project. Adobe Photoshop is a program that allows users to edit photos. This project used the program to tweak the visuals as well as arrange the composition. Adobe Illustrator is a program made for illustrating and creating vector images. This project was used Illustrator to add text and assemble all the visuals into artboards to be exported.



Figure 23. Logos – Paint Tool Sai, Adobe Photoshop, Adobe Illustrator, and Adobe XD

The project also has a digital counterpart to offer a help system for readers. The program used to create this is Adobe XD. Adobe XD is a prototyping tool that allows users to create screen designs and examples of user experience for digital products. For this project Adobe XD was used to create a reading application for the digital platform. The production of the digital counterpart started with a wireframe and was brought into Adobe XD (Figure 24).

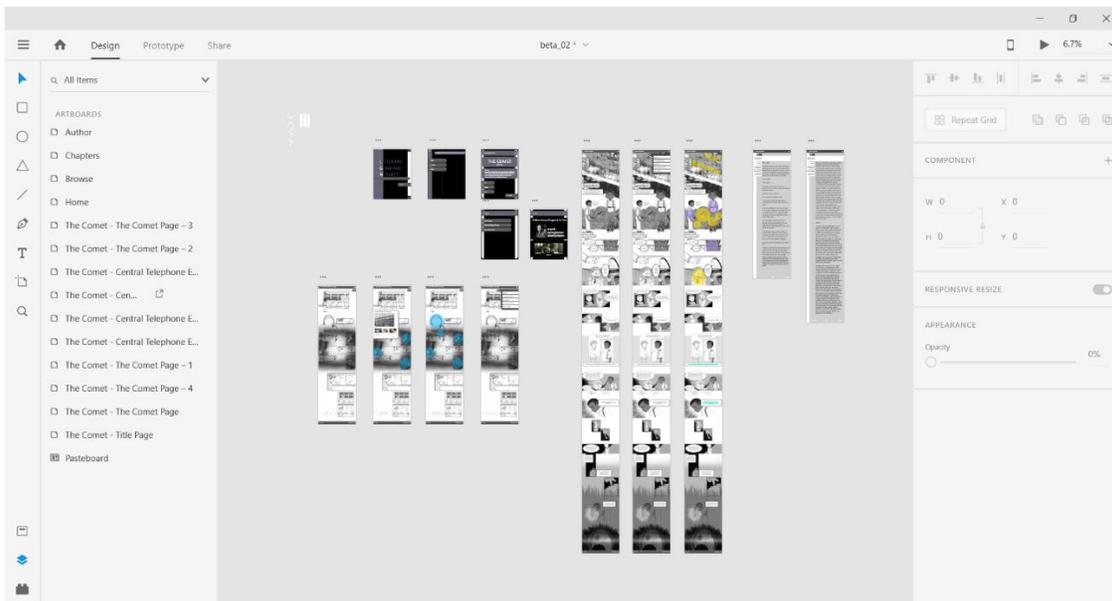
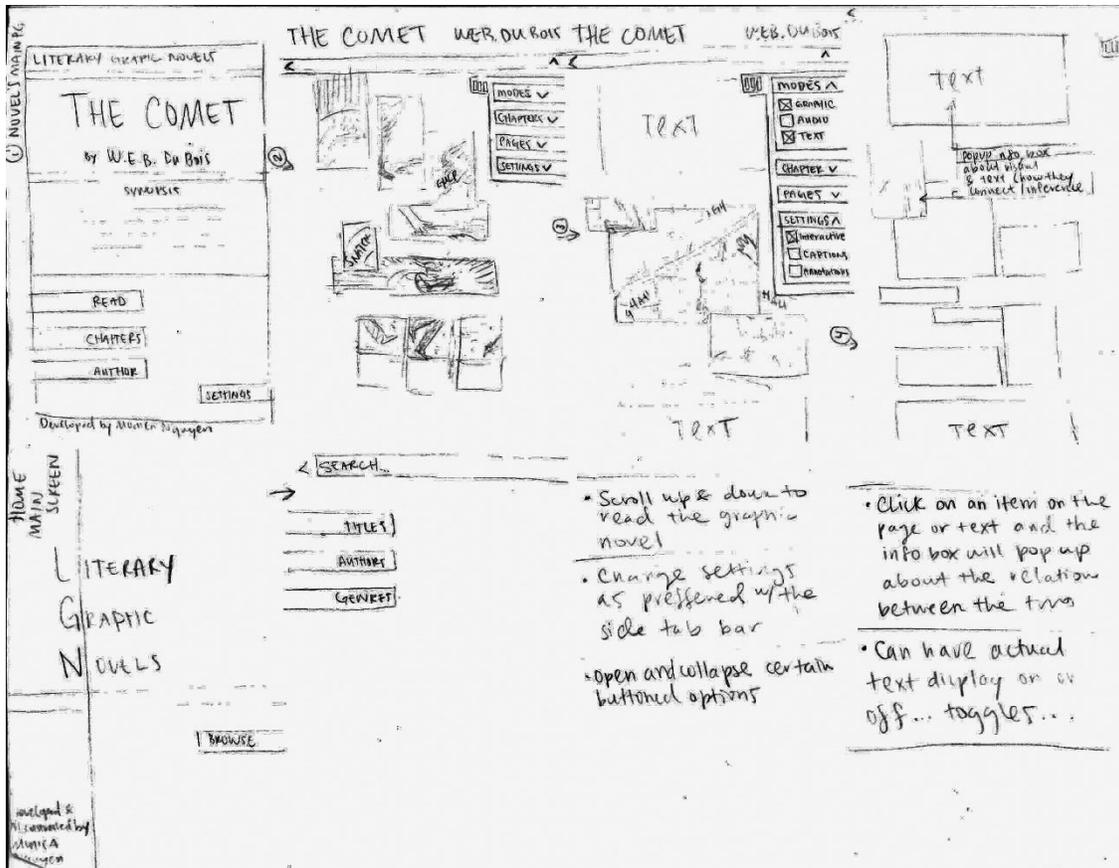


Figure 24. Process – Wireframe Sketch and Design, Adobe XD

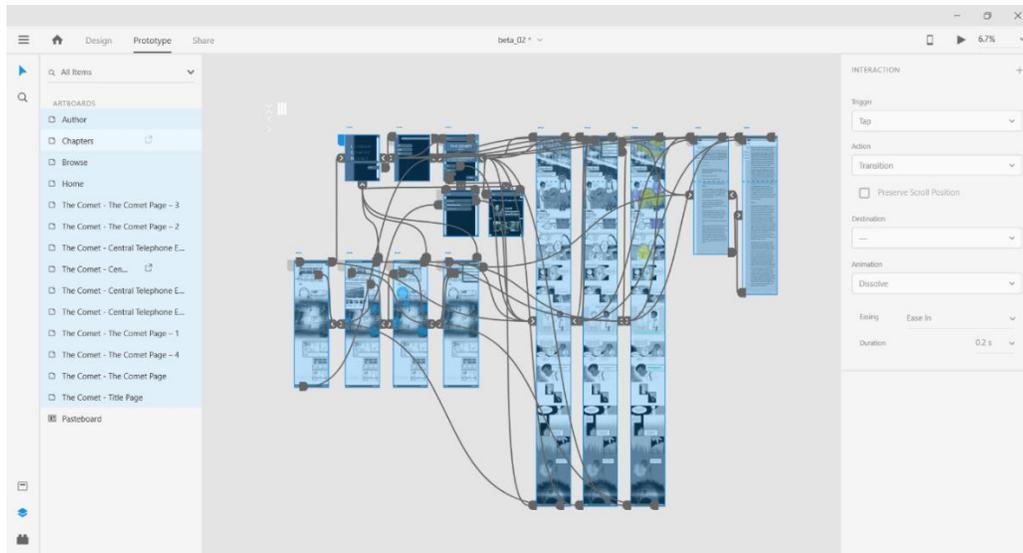


Figure 25. Process – Wireframe Prototyping, Adobe XD

The user will face the home title screen and options to browse the collection of literary graphic novels. They are then taken to the browse page which reveals tabs that allow them to filter out their search (Figure 26). Going forward to *The Comet's* title page gives the reader a synopsis and options to start reading, choose a chapter, learn about the author, or fix the settings (Figure 27). These options are similar to reading applications like MangaRock but also websites such as SparkNotes that offer readers easier navigation to information regarding the novel (Figure 28).

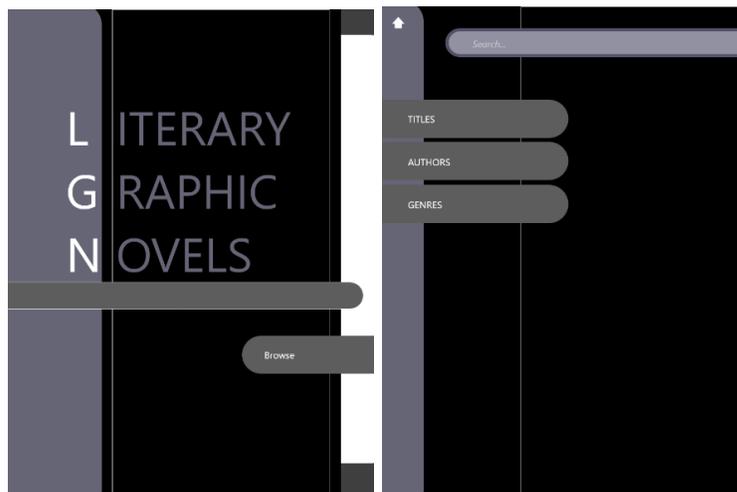


Figure 26. Process – Home and Browse

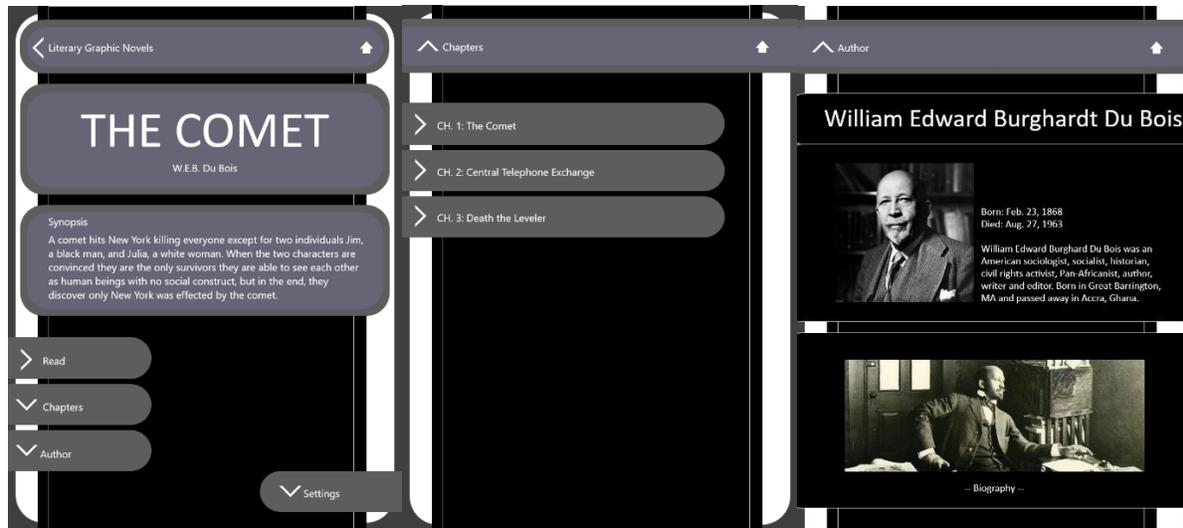


Figure 27. Process – The Comet Synopsis, Chapters, and Author

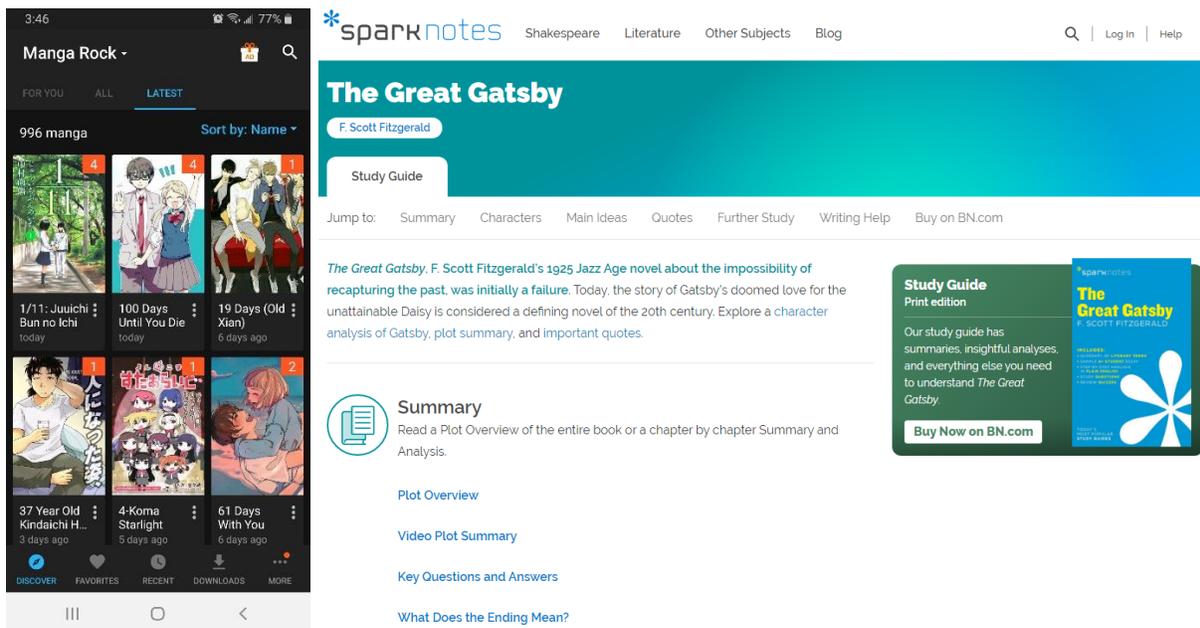


Figure 28. MangaRock Home and Sparknotes The Great Gatsby

Going into the actual design of the page the final production utilizes continuous scrolling. This structure is the same as webtoons which is most predominate in Manhwa, Korean comics including Ahyun’s *OH! Holy* and Yaongyi’s *True Beauty* (Figure 7 & 8). Incorporating continuous scrolling within the design of the graphic novel benefits the user by allowing them to read with no interruptions. The help system’s opacity is turned slightly low and is fixed on the

side to avoid clashing with the reading (Figure 29). Since the digital counterpart has a help system then the user should have the option to decide whether or not to use this feature, therefore this function can be turned on and off. Another function is color, this shows readers which terms and visuals are important to focus on and the help tab enables this option to be hidden. This is also dependent on how the individual would like to experience the use of the digital counterpart since it is more flexible versus only the physical version that is structured one way.

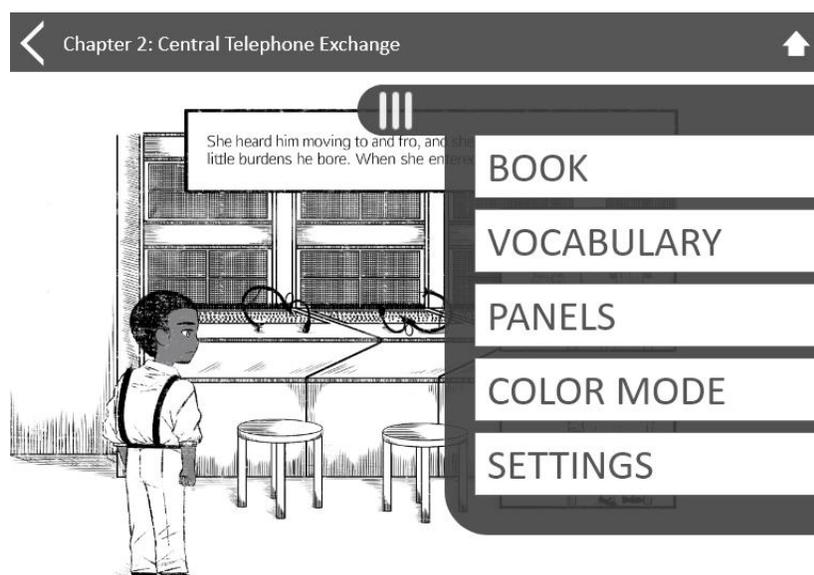


Figure 29. Process – Help System Tab

The help system also allows certain panels to be clicked on. This option offers insight on items within the narrative to help the reader understand what they are. An important factor of reading comprehension skills is having knowledge and using this information to analyze what they have read. For example, the switchboard can be clicked to reveal a definition and videos as well as the option to search for more details about the image (Figure 30). The digital counterpart also provides the entire original short story to be read within the help system. The book tab can be clicked on and there are options to highlight, annotate, and save pages similar to applications whose purpose is to edit documents including Microsoft Word and Adobe Acrobat (Figure 31).

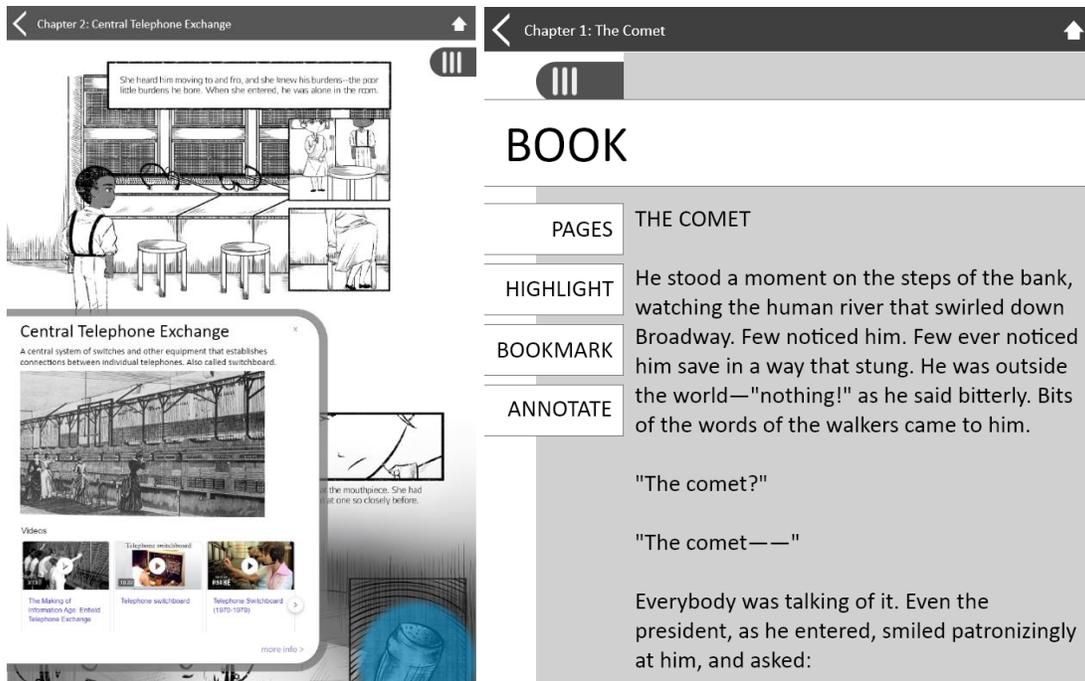


Figure 30. Process – Help System Tab Panel Pop-up and Book



Figure 31. Logos – Microsoft Word and Adobe Acrobat

Conclusion

Reading comprehension continues to be a necessary skill to develop. In order to improve reading comprehension skills, the best way to get better is to practice. Classic literature in education uses only text however not every reader is able to completely understand the language by just studying the words because individuals' learning preferences vary. All throughout history technology has had a vast amount of remediation and books have undergone many

transformations. These innovations occurred because people sought for better ways to store and share information. As society continued to embrace media the tools have changed and people have adapted. There will always be a debate concerning the use of only text as the most efficient or proper way to read and teach literature. Despite the clash, society today has become primarily visual and the need to become visually literate is more of a necessity. To reiterate Martinez's article *New Literacies for a New Era* she states, "...using visualization can help highlight key vocabulary words being taught in class or explore content and concepts as an extension of literacy development" (72). This statement also supports instructional books such as textbooks and children's books which include plenty of visuals and continue to be successful. The scientific perspective states the human brain has two hemispheres of the cerebral cortex which is the left and right side. These sides of the brain have separate functions but are co-dependent upon each other, the left-side breaks down logical textual information while the right-side computes visual patterns and these levels are different within every individual (Taylor 10). Therefore, improving reading comprehension involves the use of both visuals and text. The medium that uses both text and visuals are graphic novels which have slowly gained recognition as redeeming forms of literature.

Graphic novels are interesting storytelling tools because they include genres for not only entertainment but also tackles important topics and culture such as *MAUS* by Art Spiegelman and *Persepolis* by Marjane Satrapi. Ultimately the main goal of any author is to successfully express his or her story through structured language; a graphic novel artist uses compositional features to meticulously relay their narrative. These serious graphic novels influenced educators to have positive perspectives towards comics and soon after, works of classic literature became the focus of remediation. Improving reading comprehension requires individuals to read materials that

address multiple purposes and practice reading multiple types of texts addressed by The National Council of Teachers of English/International Reading Association's standards for English language arts (Botzakis 60). Graphic novels exemplify mediums that have different purposes and the style differs from regular storybooks. Also, interpreting how the composition is using text and visuals together give the reader a more immersed kind of experience than interpreting text by itself. In other words, the ability of an individual to understand how the images and words work together tap into his or her deduction and inference skills (Walker 7). Therefore, this project resulted in the transcription of W. E. B. Du Bois' *The Comet* into a graphic novel with the addition of a digital application to further support users to enhance their reading. This project grasps the unique construction elements of graphic novels to transcribe a literary work. Through the design choices implemented within the graphics of this novel, this project gives readers a visual tool that supports the literary text to help enhance their reading comprehension skills.

Reflection, Improvements, and Future Work

Reading had never been a skill I was good at and I wondered why I could not be like the kids in my class who finished books so quickly. I was able to learn my alphabet and increase my vocabulary but the pace was not the same. I found myself having a harder time understanding words and reading on my own. Growing up I did wonder if I had a learning disability but the positive experience I had with reading was being able to finish illustrative storybooks. However, the storybooks I enjoyed were geared towards audiences younger than me. The best way to get better at reading is practice but the appropriate material given to me for my level decreased my interest. The fateful encounter with graphic novels changed my reading experience. These mediums tell stories using text and visuals. While I continued to read through the textual

sequences, the visuals kept me engaged while my brain was compiling and grasping the overall narrative. In one day, I could finish numerous graphic novels versus one regular book. Reading became fulfilling because I was able to comprehend the material and ultimately encouraged me to practice. This experience also allowed me to understand that my learning preference involved visuals. The struggle I had to go through to figure out how to enjoy reading was an obstacle that took time to cross. However, the experience does not need to be hard for others and producing a project that has a support system to help others with reading comprehension sparks positive prospects.

Although there is not necessarily a scientific fact that individuals have a specific learning style, humans have two hemispheres of the cerebral cortex and the function levels vary within each person (Taylor 10). This statement validates learning preferences for every person. Since graphic novels use both text and visuals and I have had an interest in these mediums for a long time, I reached toward the opportunity to create a project that serves to improve and enhance reading comprehension skills. Doing research for this project definitely opened my mind to how different people are especially how they process information and what skills are most used during reading comprehension. Practicing reading is the best way to improve comprehension but understanding which skills are most used gave my design a much clearer focus. Also by studying the way graphic novel artists used construction elements, I could see how they guided readers to navigate the page. This project allowed me to have engaging discussions with English professors and their experience with teaching their students. Even in a technological society there are students who struggle with comprehension which is why creating the digital help system is convenient.

The timeline for this project was immensely short however the time I spent to bring these scenes alive brought a sense of fulfillment. There are still many ways to improve this project through the construction of the pages and layouts. For example, controlling the users pace when they read would involve spacing out the panels more. Another improvement would be to use colors more frequently to highlight and connect certain text. Lastly, there are some design choices within the panels that need to be more blunt and apparent to gain the attention and focus of the reader. In every project and work there can always be improvements (Figure 32).

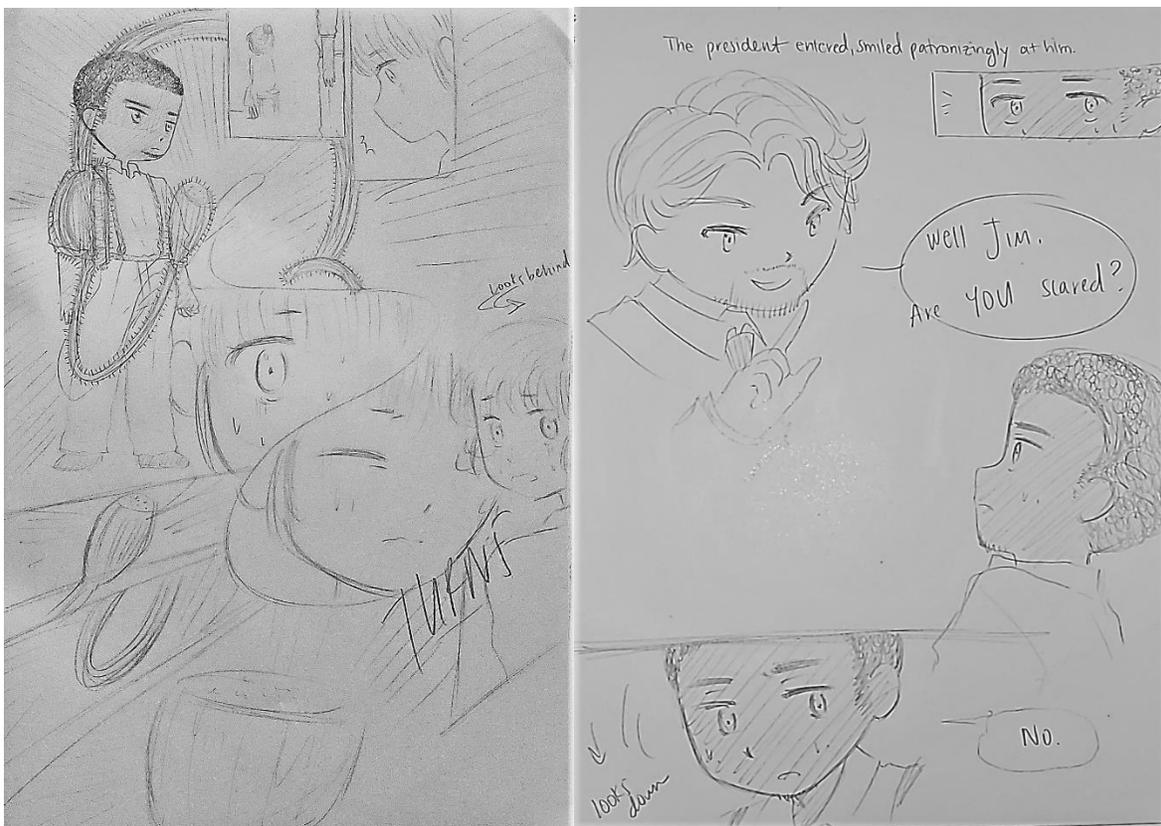


Figure 32. Process - Improvements

The next steps of the project would be completing a storyboard for the entire short-story and experimenting with the design layout of the panels for better reading comprehension execution. Also, improving the digital counterpart would involve easier flow of the wireframe

and making sure all of the tools within the application are visually functional. The final execution of the proposal for future work would be to create a website that showcases the project's process, application, and purpose.

Since *The Comet* was a story I enjoyed but also needed support in reading, transcribing the work into a graphic novel challenged my comprehension. I had an interesting time discovering the way my mind processed the text and placing the work down visually. Overall, I enjoyed gaining insight about how English teacher's taught and prepared their students as well as what programs they used. Through this process I learned a lot about digital reading applications and the various options that can be used for interaction. Discussions led to seeing how this project is of course not only limited to one story but various since there are many works of literature out there, and the ability to incorporate an application like this within a classroom would be super helpful. This would involve speaking to school systems, surveying and testing the program with students. Although the time I worked on this project was short I thoroughly enjoyed the experience and learning how I could do better.

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