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## The Art of Sketchnoting in a High School Language Arts Classroom

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The Art of Sketchnoting in a High School Language Arts Classroom

A Dissertation Presented for the  
Doctor of Education  
Degree  
Kennesaw State University

Rachael C. Bourne  
August 2022

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## Dedication

To my dad, who has always supported me, kept me on the right side of the tracks, and consistently reminded me of how proud he was of me. For buying me coffee in the mornings and beer at night. For the pep-talk phone calls and reminding me that I can accomplish anything. I will never be able to thank you enough for being my number one supporter and biggest fan. Your little girl finally did everything you knew she would!

To my mom, who always knew I could do anything I put my mind to. For having a strong work ethic and dedication that was passed on to me. Thank you for working tirelessly to get me through my education.

I also dedicate this dissertation to my many friends and co-workers who have supported me throughout this entire process. For celebrating every little step I accomplished, pushing me to believe in myself and reminding me that there was a light at the end of this extremely long tunnel. You sometimes believed in me more than I did and for that I will be forever grateful.

Finally, to my fiancé, Metz, you have been the greatest and most patience cheerleader. You were never frustrated with the late nights or spending entire breaks at home so I could research, read, and write. You always let me take over your office while you worked on the couch. Your constant gestures of love and support never went unnoticed. This is an accomplishment for both of us, you are finally a doctor by proxy!

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### **Abstract**

This case study addressed how visual note-taking (sketchnotes) impacted students' learning in an English Language Arts (ELA) classroom. The purpose of this qualitative study was to analyze if sketchnoting was a useful tool that students could use to deepen their understanding of concepts learned in ELA. Data from student examination of their own sketchnotes, teacher/researcher examination of the sketchnotes, and interviews were analyzed by identifying quality of work, themes, and assessment questions. The interview questions focused on student experiences with sketchnotes, test score outcomes, and student emotions towards sketchnotes. The examination was a document analysis of sketchnotes parallel to student assessment questions. This was to analyze visual items either presented or not presented on the sketchnote to what the assessment question was asking. Case study research is an analysis of a single or collective case, intended to capture the complexity of the object of study. The object of this study was sketchnoting and how sketchnoting helped or impacted student learning. Through this research, I presented my key elements of this study. The results of this study could help educators understand the benefits of sketchnoting in their classroom. It may also improve student learning and education.

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## **Chapter One: Introduction**

From an early age, humans tend to express themselves visually. Children finger paint, create drawings in crayon, take markers to their parents' walls, and even design with lipstick or eyeliner on mirrors. Symbols, such as hieroglyphics and prehistoric images on cave walls, are another form of visual information, communicating meaning about the ancient world. Through past generations, humans have used images and visual texts to make an effort to communicate. Today, humans use billboards, commercials, and social media as a means of communicating visually. Despite all the ways image-based texts are used in society, classrooms are still dominated by print-based texts and verbal instruction (Daniels, 2019).

### **Background**

The brain can process visual information around 60,000 times quicker than it can process other types of information (Eisenberg, 2014). The general use of visual aids is known to increase learning and provide students the chance to create a connection with content they are learning (Eisenberg, 2014). Studies have shown that more than 80 percent of human learning occurs through visual means and that an individual's ability to retain information is six times greater when visuals accompany spoken or written elements (Mills, 2018). Although print-based materials and practices are common in schools, image-integrated approaches, modes, and texts are also potential pedagogical options for educators. For instance, visual note-taking—known as “sketchnotes”—integrate print and images (i.e., drawings, shapes, and arrows) as a means of helping students process, understand, and relate information. Sketchnotes are a new form of visual note-taking that can take place in a classroom to help students retain information.

Rohde (2013) explains sketchnotes as “rich visual notes created from a mix of handwriting, drawings, hand-drawn typography, shapes, and visual elements like arrows, boxes, and lines” (p. 23). Students use their classroom printed notes and create an original sketch—a visual representation—that includes the above various visual elements. The combination of elements means that organization must be a key feature of sketchnoting, making students organize these various elements in order to create meaning and a connection towards their notes. Information has zero value if it cannot be remembered or shared (Rohde, 2013). Without the foundations of text, images, and structure, students would not use sketchnotes as an effective note-taking tool (Rohde, 2013).

Sketchnoting is an outlet for students, based on prior knowledge, to create personal connections to the new curriculum they are learning and to understand by having them interact and recreate their notes. Sketchnoting combines the personality of the student with their notes, allowing them to create their own image-based texts that parallel their own experiences, along with the creation and use of chosen visual elements.

Students learn better from words and visual images than from words alone (Mayer & Gallini, 1990). The advantageous addition of images also fits with the dual-coding theory (Clark & Paivio, 1991) that learning is best when material is processed both verbally and visually. However, many classrooms print-based notes are presented as words alone (Luo et al., 2018). Currently, many students come to their classrooms prepared to take notes the way they have always done in previous years. In a world filled with technology, including an extreme number of visual texts, it is becoming imperative to consider different ways teachers can incorporate visual learning into their lessons to

promote a different note-taking strategy. What if teachers tried to leverage the visual elements of social media that students are intimately familiar with as a new form of note-taking?

### **Problem Statement**

Research indicates that most students write down about 50% of the main ideas in a lecture and less than 25% of other relevant material (Neef et al., 2006). Students are not always effective notetakers, and very few students are taught even basic note-taking skills. Chen (2019) argues that instead of focusing on whether students should take notes in class, more attention ought to be paid to how the students take notes or, in other words, the use of lecture note-taking strategies. Some educators have also contended that note-taking strategies should be taught (Haghverdi et al., 2010). Adapting sketchnotes could be presented as a possibility for teachers to be able to evolve their note-taking strategies in the classroom. Teachers could use sketchnoting as a focus on the “how” of note-taking.

New technology has increased possible distractions for student attention. Current students have grown up with technology, including computers, cell phones, iPads, and video games. Exposure to this new technology has resulted in enhanced thinking skills in several areas, many of which are visually oriented (Brumberger, 2011). Yet, this exposure is also one of the reasons students “check out” during class, especially when teachers are lecturing (Brumberger, 2011).

An abundance of research has been conducted exploring the relationship between cell phone use in the classroom and academic performance (Siebert, 2019). Findings from several studies suggest that cell phones in the classroom are being used for nonacademic purposes (i.e., social media and texting) that negatively impact academic performance

regardless of students' intelligence (Ravizza et al., 2014). With the rise of cell phones in classrooms, students are losing more interest and become increasingly disengaged from school (Wigfield & Wentzel, 2007). Wigfield and Wentzel (2007) identify those students view school as a workplace where they are forced to do activities that have no meaning or connection to them. To increase motivation, students need to recognize the value of an activity that they are completing and the material they are learning. They must see the material as an important part of their sense of self, a means to attaining an important or future goal (Hulleman & Barron, 2015).

Unfortunately, note-taking is difficult for many students (Suritsky & Hughes, 1991). For many academically at-risk students or students enrolled in special education programs, print-based note-taking can be difficult, frustrating, and overwhelming (Suritsky & Hughes, 1991). Many high schools have co-taught classes where either special education students or English Language Learners (ELL) are mainstreamed. Sketchnoting could be presented as an alternative way to provide notes to these students, as well as all other populations. Compensatory note-taking strategies can emphasize the importance of active student participation and response during instruction (Sweeney et al., 1999). Research shows all levels of learners need multiple note-taking strategies (Vekaria & Peverly, 2018).

Conversations about note-taking and who teaches note-taking skills are becoming slowly eclipsed by challenges to the very notion of taking notes in lecture environments (Van der Meer, 2012). Rapid technological advances and their affordances provide for making lecture material available in electronic formats, including tools like screencasting, and they challenge the very notion of note-taking as an essential skill to capture

information (Van der Meer, 2012). The need for a pedagogical shift in how educators teach students to take effective notes is clear, especially in this generation.

### **Purpose of the Study**

The purpose of this qualitative case study was to determine if student sketchnoting promoted a deeper understanding of the secondary English curriculum. Using sketchnotes as a note-taking strategy could bridge the gap between visual note-taking and metacognitive awareness. Chen (2019) argues educators should start evolving the way they present information to their students, just as students are evolving in the way they learn. The outcomes of this research could expand how teachers present notes, how students understand and learn content, and how to potentially alter current note-taking strategies in a secondary environment.

Sketchnotes allow the student's "drawing [to] reflect and aid higher-level thinking and can reveal deeper feelings, influences and interests - thus externalizing the [student's] inner emotional state and development" (Odhiambo, 2020, p. 104). The observations of these drawings aided this qualitative research study. Qualitative researchers build towards a process that is inductive; researchers build concepts and hypothesize (Merriam, 1998). Sketchnotes are a relatively new note-taking concept in the English curriculum. With this qualitative study, I observed and synthesized the effects of sketchnoting.

### **Research Question**

Given the purpose of this study, in order to determine if student sketchnoting promoted a deeper understanding of the English curriculum, the following research question was developed: How does the use of sketchnoting as a note-taking method within an 11<sup>th</sup> grade English Language Arts classroom affect the students' understanding

of Realism within the American Literature curriculum? This question allowed for an examination of student understanding of Realism within the American Literature curriculum.

### **Theoretical Framework for the Study**

This study sought to explore the theoretical and practical application of sketchnotes from a high school teaching, learning, and assessment perspective. For this research, there were four clear theoretical foundations that provided guidance: Schema Theory (Piaget, 1923), Visual Learning Theory (Fleming, 1987), Dual Coding Theory (Paivio, 1970), and Cognitive Constructivist Theory (Piaget, 1973).

Since sketchnotes are a form of visual thinking and learning, this study was influenced and informed by a visual literacy framework. This framework applied visual learning and thinking strategies towards the practical application of sketchnotes as a tool to deepen student learning. In addition, this study was informed by concepts associated with paralleling student connections to their English/Language Arts (ELA) curriculum.

### **Nature of the Study**

My case study focused on the action of what is being studied (sketchnotes), trying to reach a deeper understanding of my students' actions in regard to a phenomenon within their classroom. The case that was studied was my 11<sup>th</sup> grade ELA class. The bounded phenomenon within the case was the visual note-taking tool of sketchnotes. Since students are more visually inclined than in earlier eras, evolving the way students take notes is imperative (Tillman, 2012). The effects of sketchnoting and how sketchnoting promotes a deeper understanding of particular concepts within the ELA curriculum was shown through this case study. Case study worked better for this research than other



forms of qualitative research, because I conducted an in-depth study of a single social phenomenon (visual learning). Case studies permit the grounding of observations and concepts about social action and social structures in natural settings studied at close hand (Feagin, Orum, & Sjoberg, 1991). I selected case study research, because I wanted to reach an in-depth focus on how sketchnotes work in the classroom.

### **Definitions**

This study sought to establish the perceived impacts and benefits of sketchnotes and its effects on students' understanding of particular concepts within the ELA curriculum in a secondary learning environment. The following are concepts and terms that are defined in order to clarify their utilization within the study.

**Dual Coding Theory (DCT):** DCT is a theory describing how the brain's two systems, verbal and visual, work independently, yet function together to create richer learning (Paivio, 1970).

**Literacy:** Literacy is the "flexible and sustainable mastery of a repertoire of practices with the texts of traditional and new communications technologies via spoken language, print, and multimedia" (Dept. Ed., 2000, p. 9)

**Metacognitive Awareness:** Allows individuals to plan, sort, and monitor students' thinking processes (Paivio, 1970).

**Multimodality:** Multimodality refers to the "interplay between different representational modes, for instance, between images and written/spoken word. Multimodal representations mediate the sociocultural ways in which these modes are combined in the communication process" (Kress & Van Leeuwen, 2001, p. 20).

**Note-taking:** Note-taking consists of writing down ideas, providing summaries of important points or information, and outlining a summary of information presented orally or written (Larsen-Freeman & Long, 1991).

**Schema:** According to Flemming (1987), schema is an organized mental structure of knowledge stored in memory.

**Sketchnotes/Sketchnoting:** Rohde (2013) explains sketchnotes as a mix of handwriting, drawings, shapes, visual elements, and hand-drawn typography.

Rohde (2013) describes the innovation as “rich visual notes created from a mix of handwriting, drawings, and hand-drawn typography, shapes, and visual elements like arrows, boxes, and lines” (p. 2).

**Visual Learning:** Using imagery and graphics to understand, interpret, and convey information (Chmela-Jones, Buys, & Gaede, 2007).

**Visual Literacy:** Current definitions of visual literacy typically refer to an individual’s ability to both analyze and produce visual materials (Hattwig, 2013).

### **Assumptions**

Creswell (2012) suggests that assumptions in a research study are needed to help provide scope and boundaries. Participants were assumed to be able to create visual connections to the English curriculum after being taught sketchnote lessons. I assumed that the participants had enough previous knowledge to understand the content of the visual note-taking lesson and were able to produce a sketchnote based on a visual note-taking lesson that guided them on their assessment. Within that lesson, I assumed students were able to analyze a sketchnote rubric and create a proficient sketchnote that covers what is being taught in the classroom. From that lesson, participants had enough

time to complete their sketchnote before the unit assessment. Ultimately, I assumed students were performing to the best of their abilities on assessments and with the creation of their sketchnotes.

In this study, it was assumed that all participants answered all interview questions openly and honestly even though the researcher was also their teacher that provided their grades in the classroom. To avoid a power differential between me and my participants, I actively reminded them that participation in the interviews would not affect their grades and allowed them to stop participation at any point.

### **Scope and Delimitations**

Sketchnotes could be a valuable note-taking method that could affect the student's understanding of the English curriculum. Sketchnotes as a note-taking method was the specific focus in this study to demonstrate how visual images could deepen understanding. This study was not intended to prove that note-taking methods need to evolve, but to show that a new way of taking notes could present benefits to student learning and understanding.

The boundaries of this study were conditions and circumstances controlled by the researcher. The participants and learning space were both selected by the researcher. The learning space was a secondary 11<sup>th</sup> grade English classroom. The participants were a group of high school students selected based on their levels of learning and learning abilities. My group of participants included one class period of 29 11th grade students (ages 16-17). From those 29, I selected six participants to participate in this case study. These students were selected based on their identifications in the school: Gifted and Talented, three On-level, Struggling, and Student with a 504.

## **Limitations**

According to Creswell (2012), limitations in a research study are necessary to provide a framework around what is researched. The first limitation that this study had was the lack of diversity within my classroom. This study was limited to one of my class periods, and, from that class of 29, four of the students were females while 25 were males. Ninety two percent were White, while eight percent were African American. All four female students were White, as well. Thus, the lack of diversity in the sample size limited the transferability of the results to those classrooms that are similarly composed. Also, the English curriculum was the only content being taught, so students were limited to one subject matter.

Participants were provided a rubric to follow for their sketchnotes. Thus, students were limited to basic requirements that were going to be graded. Participants might have created the sketchnote, because they knew it was going to be graded. Each student brought his or her own personal connections to their visual note-taking experience. They could be limited in the number of connections they were able to create.

Finally, in this study, participants might feel limited by the task of illustration. Students without artistic abilities might have felt inadequate in completing a visual assignment. Participants might have disregarded the assignment before they even tried.

Having used sketchnotes previously in my curriculum and witnessed positive effects on student assessment, I had an emotional and personal connection with sketchnoting. This could have led to the potential for a biased result. After my analysis, I asked my participants to make sure my interpretations seem to represent their standings

and answers. After de-identifying the data, I asked the participants to review my conclusions to identify gaps or things that I might have missed.

The interview questions were simple and to the point, avoiding words and phrases that could have introduced bias. Leading questions that could prompt the participant to respond in favor of a particular assumption were not used. I continued to re-evaluate the interview responses and ensured that preexisting assumptions were kept at bay.

### **Significance**

Note-taking is found to be a valued part of learning and studying, and it has a long history in education (Lee et al., 2013; Van Der Meer, 2012). Doodling, or sets of spontaneous non-textual marks, are used to aid thinking (Brown, 2011). Ensminger (2010) suggests that when doodles are used as a learning strategy, they could transform the information that students receive to help create visual connections to the content that students are processing (Ensminger, 2010). Additionally, purposeful doodling combined with note-taking may be a learning strategy (Smith, 2010). Rohdes (2013) expands on the idea of “doodling” for learning and education and created his concept called sketchnoting. Note-taking and illustrations researched together, more specifically together as visual notes [sketchnotes], may be foundational to the discovery of visual note-taking and its relationship to learning (Lee et al., 2013; Wheeldon, 2011). With this study, sketchnotes might signify the bridge between visual learners and note-taking methods.

The study is significant in several areas related to visual learning, note-taking methods, and sketchnote research. First, research into the specific application of sketchnotes in a secondary learning environment is negligible. Second, little is known

about sketchnotes being used as a note-taking tool and the benefits that sketchnotes can have on student assessments. Third, this study could assist in developing visual learning as a staple in secondary curriculum. This could lead to exploration of expanding note-taking in a secondary classroom; therefore, creating a deeper understanding of curriculum. Finally, this study could provide insight into the use of sketchnotes as a note-taking strategy across multiple secondary academic disciplines leading towards deeper understanding across all curriculums.

### **Summary**

Chapter One presented the introduction to the study being conducted. It brought to light the problems showcased in the field of visual learning and note-taking. The chapter provided background information, the purpose of this study, summary of research, and assumptions of the study. Finally, Chapter One ended with the significance that this study could provide for future note-takers in the classroom.

A review of the literature is found in the next chapter, Chapter Two. This chapter includes foundational research for this study. It is organized into several different sections, including the history of note-taking, evolution of digital literacy, and the presentation of sketchnotes as a tool for a revolutionized note-taking method. Chapter Two ends with providing gaps in the literature, thus leaving room for future researchers.

## Chapter Two: Literature Review

The purpose of this qualitative case study was to analyze and explore the experiences participants had with visual note-taking. This study aimed to determine if using sketchnotes would promote a deeper understanding of particular concepts within the ELA curriculum. Using visual aids alongside note-taking has been shown to be beneficial to learning (Andrade, 2010; Lee et al., 2013; Makany et al., 2009).

The topical research below defines literacy with a focus on visual literacy, explores the evolution of digital literacy, and surveys the history of note-taking with distinctive note-taking strategies. While exploring visual literacy, an additional focus will be on student motivation and efficacy in the classroom. This chapter will also provide an overview of research regarding sketchnotes along with identifying if there is a need for a new note-taking strategy. A brief overview of challenges with note-taking in the classroom will be presented.

### Literature Search Strategy

The databases used for this literature review included *ERIC (at EBSCOhost)*, *Education Database (ProQuest)*, *Education Sources*, *Child Development and Adolescent Studies*. Key terms searched were: *sketchnotes*, *sketchnoting*, *note-taking*, *sketch*, *literacy*, *student motivation*, *digital literacy*, *visual learning*, *visuals*, and *literacy*. Supplementary terms were also searched such as: *Dual Coding Theory*, *Visual Learning Theory*, *cognitive*, *Cognitive Constructivist*, *Schema*, *Schema Theory*, and *modality*. Those keywords lead to thousands of journals, articles, and previous research, so I limited the research to reflect the last five to ten years. Since some concepts presented in this paper dive into history, I had to research the original dates. Using a combination of these

words, phrases, and dates, the foundation of my study was created. Furthermore, I used cited sources from studies that I came across to advance my literature search. When there was little current research on a subject, I assumed that this could potentially be gaps within the literature.

### **Learning Theories**

The four theoretical frameworks that guided this research were: Schema Theory, Visual Learning Theory, Dual Coding Theory, and Cognitive Constructivist. These learning theories worked together to showcase how students develop an understanding of learnt material along with creating their own connections to their notes through visualization and summary.

#### ***Schema Theory***

According to Flemming (1987), a schema is an organized mental structure of knowledge stored in memory. Learning occurs when learners integrate new knowledge with prior knowledge stored in long-term memory. When this learning occurs, schema is modified as new knowledge and is stored in the brain. In other words, learning occurs when schemata (new learnt material) grow and change (Smith, 2019). Schema allows students to make connections to their prior knowledge. Comprehension is a matter of activating this schema and then constructing a new schema that provides a coherent explanation of these new ideas (Anderson, 1994).

Anderson (1994) further suggests that there are ways that teachers can activate schema in learners. Teachers should focus on activating and allowing students to use their prior knowledge to drive further learning and comprehension. By relying on schemata,



learners can search their memory in an orderly fashion to find the information to apply to new information (Smith, 2019).

Sketchnotes rely on students making connections to their prior knowledge. They must take their newly learned content and find a way to create a visual connection. Without a schema, students would not be able to produce a sketchnote and have a deeper understanding of the newly learned content.

### ***Visual Learning Theory***

Various studies report that 75% of all information processed by the brain is derived from visual formats (Raiyn, 2016). Visual learning is defined as the assimilation of information from visual formats (Raiyn, 2016). When students can visualize the information, or are presented with visual images, they understand the information in a more enhanced way. Visual information can be presented in different formats, such as images, flowcharts, diagrams, video, simulations, graphs, cartoons, coloring books, slide shows/PowerPoint decks, posters, movies, games, and flash cards (Rodger et al., 2009). Visual learning also helps students to develop visual thinking, or a learning style whereby the learner comes to better understand and retain information better by associating ideas, words, and concepts with images (Raiyn, 2016).

Visual Learning Theory supports the concept of sketchnoting due to the fact that students parallel and create visuals for their content notes. Rodger (2009) explains that, when students use visualizations, they remember and enhance their understanding of concepts. Thus, sketchnotes will allow students to create visuals that they will eventually visualize on their assessments, possibly leading to higher assessment scores. Teachers in

an ELA classroom that allow students to produce image-based material, along with analysis, move towards promoting a deeper understanding of the curriculum content.

### ***Dual Coding***

Dual Coding Theory bridges images and words, proposing that the verbal code (language) and the nonverbal code (objects and pictures) work together flexibly. Words evoke images; images evoke words. Each is stored independently in one's brain, though they are linked. This theory, proposed by Paivio (1970), explains how powerful images can be in everyday thinking. Dual Coding Theory posits that learners maximize the chances for recall when words and pictures are stored in two ways in the brain (McGregor, 2019).

Sketchnoting takes the Dual Coding Theory and puts it into practice by allowing the students to connect images to words and concepts. While creating a sketchnote, students provide images for curriculum material. Then, while taking a summative exam, students are able to recall those images and provide a text example. The images and texts work together to promote understanding.

### ***Cognitive Constructivist***

In Cognitive Constructivism (Piaget, 1923), ideas are constructed in individuals through a personal process. Piaget's theory of cognitive development proposes that humans cannot be given information that they immediately understand and use; instead, humans must construct their own knowledge (Piaget, 1953). By presenting classroom notes, students never use their own knowledge. They regurgitate information that has already been presented that can create a gap in their learning. Through the strategy of

sketchnoting, students must take the already presented information and construct their own knowledge towards the presented information.

Cognitive Constructivism overlaps with Schema Theory. Cognitive Constructivism focuses more on facts and constructing knowledge within one's own schemas (Powell & Kalina, 2009). Combining visual aids with notes during sketchnoting combines Cognitive Constructivism and Schema Theory that hopefully will allow students to create a deeper understanding of their curriculum content.

### **Conventional Literacy**

Conventional literacy refers to reading and writing that follow the form, content, and use of standard conventions (Koppenhaver, 2000). This conception of literacy is consistent with scholars (Kirsch & Guthrie, 1977-78) who describe literacy in terms of the reading and writing needed to be able to function in daily life.

The beginning stages of conventional writing starts with preschool children learning how to write their names or simple sight words. Children's exposure to print begins early in life through a range of interactions with non-digital and digital texts, and this leads to emergent skills used to construct meaning from these texts (Neumann et al., 2017). Constant exposure to one's name, illustrating stick-figured families, and tracing on a digital tablet device display those exposures. The development of these skills paves the way for eventual vocabulary, spelling, reading, and comprehension during future schooling.

Conventional literacy still dominates the current English curriculum with a strong focus on comprehension and writing.

### **Digital Literacy**

Digital literacy refers to the use of digital tools to create meaning and communicate effectively with others, including the ability to use visual representations, integrate different digital texts, navigate non-linear digital texts, and evaluate digital information (Bulger et al., 2014; Eshet-Alkalai, 2004). Reading and writing are still very much at the heart of digital literacy. Conventional literacy is still the core of digital literacy, but, given the new and ever-changing ways society uses technology to receive and communicate information, digital literacy encompasses a broader range of skills. These skills are everything from reading on a Kindle to gauging the credibility of a website or creating and sharing YouTube videos (Heitin, 2016). The world has started to change, and the definitions of literacy have also started to evolve.

Unlike conventional literacy, digital literacy is the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills (American Library Association, 2011). While reading an online article, students have the option to click hyperlinks, interact with graphics, watch videos, and even have the option to share. Students are actively engaging with a digital platform, even though it looks as though they are just reading. Digital literacy is one of the essential skills of the twenty-first century and one of the most important subjects in the education sector (Gündüzalp, 2021).

### ***Multimodality***

Multimodality understands communication and representation as including a variety of semiotic modes (i.e., speech, writing, image, gesture, and three-dimensional models) that are socially and culturally shaped for making meaning (Norton & Kress, 2000). Multimodal learning—learning with, through, and around content in multiple

forms—has, in the digital age, become the seamless norm in most contemporary classrooms (Meskill et al., 2019). Students are accustomed to “encountering curricular content through images (still and moving) aurally, kinesthetically, and of course, textually” (Meskill et al., 2019, p. 2).

Conventional literacy modes of reading and writing contribute to constructing meaning in different ways. Digital literacy, as stated above, is now needed to construct meaning, as well. Therefore, no one mode stands alone in the process of making meaning; rather, each plays a discrete role in the whole (Jewitt, 2018). It is essential that teachers who educate individuals raised with technology have both information literacy and digital literacy skills (Gündüzalp, 2021). With the rapid entry of the digital world into society, access to information has started to be provided by digital mediums meaning that information literacy in the digital world is mostly provided by digital means. The concepts of information literacy and digital literacy emerge as two complementary elements, at this point (Gündüzalp, 2021).

Visual and digital literacy are an integral part of literacy instruction for the 21<sup>st</sup> century. Social media applications, such as Snapchat and Instagram, have blurred the boundaries between text and visual-based images (Walsh-Moorman, 2018). There is an intersection of visual literacy with digital technology and digital literacy (Hattwig, 2013). Current definitions of visual literacy typically refer to an individual’s ability to both analyze and produce visual materials (Hattwig, 2013). As Brumberger (2011) explains, “visual literacy is not only the ability to analyze and interpret images, but it must also be accompanied by some ability to create visual material” (p. 20). Brumberger (2011) links together analyzing images and producing a visual text.

## **Literacy and Visual Literacy Expanded**

Cognitive, emotional, and social skills have merged as technical processes within digital literacy, and these processes require the latest developments, especially within education, to be followed universally (Nawaz & Kundi, 2010). Cognitive functioning is critical for day-to-day life, governing thoughts and actions. Cognition helps people understand information about the world around them and interact safely. In the classroom, students have to use a lot of cognition to listen, synthesize, and learn. Even though visual imagery has been shown to be an integral part of human cognition, it tends to be marginalized and undervalued in contemporary higher education (McLoughlin & Krakowski, 2001).

America is saturated with visual images, and students need to be able to critically analyze those images through visual literacy investigations (Pace, 2018). Finley (2014) stated, "Visual literacy is a staple of 21st-century skills" (p. 7). Before children comprehend letters and words, a plethora of everyday images stimulate their brain, and an evolution of those images start to form understanding. Yet, visual literacy is not always something that is taught, even though the world demands that a literate person possess and intentionally apply a wide range of skills, competencies, and dispositions (NCTE, 2019).

The National Council of Teachers of English (NCTE; 2019) refined the "definition of Literacy in a Digital Age mak[ing] it clear that the continued evolution of curriculum, assessment, and teaching practice itself is necessary" (p. 1). This evolution identifies when society and technology change, literacy has to change, as well (NCTE, 2019). In many ELA classrooms, the term literacy implies reading and writing. However,

this narrow perspective does not acknowledge the multiple "literacies" that currently exist in contemporary society (Gilbert & Fink, 2013). NCTE (2019) and Gilbert and Fink (2013) posit that literacy must evolve with this new digital age and with new digital learners.

In many school districts, the question posed is, "whether the concept of visual literacy, however defined, merits the kind of full-fledged academic and curricular accreditation that incorporating it into state and local standards would grant it" (Shifrin, 2008, p. 106). The subject regarding the importance of traditional literacy evolving to visual literacy in the classroom still stands unanswered for multiple high schools. Felton (2008) describes,

Many of the leading books on pedagogy in education make at most a passing reference to visual-literacy considerations, in effect treating images as mere illustrations and ignoring the myriad of ways people make meaning by combining visuals and texts. (p. 60)

Blead (2005) argues that visual literacy is now as essential as more traditional forms of literacy. New technology is changing what it means to be literate. In the 21<sup>st</sup> century, it is imperative that students are taught the ability to interpret, create, and analyze media with importance placed on reading and writing (Blead, 2005). Visual literacy goes above and beyond the traditional concepts of reading and writing, expanding literacy to include image-based texts that will improve the 21<sup>st</sup> learner (Tillmann, 2012).

Mori (2017) expressed, "people really get their information from images. The entire education system should be revamped to emphasize visual education; from kindergarten to college" (p. 4). Rather than encompassing a single literacy, English

teachers must accept the changing and flexible nature of literacies that address areas as diverse as technology, multimedia, relationships, and culture (NCTE, 2006, 2008, 2019).

### *Visual Literacy*

Photographs create a powerful sense of “reality”, “truth”, and “evidence”, because they resemble the objects they represent, unlike in the case of verbal language (Newfield, 2011). Students' literacy practices are filled with visual texts, but their classroom experiences offer little preparation to parse those texts in meaningful and challenging ways. Simply living in a visual world does not make students visually literate; visual literacy is a learned skill, not an intuitive one (Walsh-Moorman, 2018).

Visual literacy strategy enhances understanding of the role and function of images in representation and communication, especially in the media (Newfield, 2011). Visual literacy has been an area of study and investigation since the 1960s, when John Debes (1968) and others founded the International Visual Literacy Association (Hattwig, 2013). This foundation was founded around the indication that humans need to be able to analyze and construct meanings of the visual texts in the world.

The International Visual Literacy Association adopted Debes (1968) definition of visual literacy that states that humans must be able to recognize the visual propaganda in their environment to be able to understand it. Essentially, visual literacy focuses on how images serve as a distinct mode of communication to help people understand the world around them. As Debes (1968) defined, humans use their sensory experiences to develop understanding. This allows for a deeper connection between the viewer and image making teaching visual literacy imperative, or, as Debe's (1968) explains, a fundamental skill that students need to learn how to properly use. This skill is fundamental because



children learn to understand visual information much earlier than they learn to interpret textual information (Bamford, 2003).

Thirty years later, in the 1990s, arts educator Yenawind (1997) outlined and reformed visual literacy as the ability to find meaning in imagery. Yenawind (1997) focused on aspects of cognition, such as personal association, questioning, speculating, analyzing, fact-finding, and categorizing. Yenawind (1997) altered Debes' (1968) definition to reflect how visual literacy is focused upon using cognition in the classroom. As Yenawind (1997) clarified in his definition, there are many different aspects of cognition that are called upon when using visual literacy.

There are many classifications of the visual literacy fundamentals that teachers can use in their classrooms. With those classifications and multiple definitions of visual literacy, the Association of College and Research Libraries (ACRL) published their visual literacy competency standards for higher education in 2011, which lists seven criteria that define what it means for a student to be visually literate:

- (1) understanding of the tools and materials used to create an image;
- (2) the ability to effectively locate useful visual media;
- (3) understanding of the cultural relevance at the time of an image's creation in comparison with the image's relevance in current culture;
- (4) understanding of the physical components of an image including color, line, shape, and size;
- (5) the ability to analyze an image's effectiveness and reliability;
- (6) use of images and image technology for effective communication; and

(7) understanding of the ethics and legal and social implications of creating visual media (p. 1).

Those seven criteria have now become the basis of visual literacy standards in education.

### ***Visual Literacy Framework***

With visual elements starting to integrate into the 21<sup>st</sup>-century classroom, a visual literacy framework and the use of teaching visual elements are necessary and must be carefully planned (Stokes, 2014). Dwyer (as cited in Williams & Dwyer, 1999) suggests that there is a need for a coherent and systematic approach to how visual aids are properly used in the educational setting since visualization alone does not function to maximize student achievement.

To be visually literate, a person should be able to read and use visual language, including the ability to successfully decode, interpret, and evaluate visual messages and to encode and compose meaningful visual communication (Hattwig, Bussert, & Burgess, 2013). Debes (1968) was the first to coin the phrase visual literacy, even though this concept dates to prehistoric times (Michelson, 2017). Based on his work, Bolter (1998) writes, “. . . the status of graphics and visual literacy may well be the great open question facing education in the coming years” (p. 138). Bolter’s (1998) work was the most cited and one of the earliest of many articles highlighting the Internet’s vast cultural influence and potential (Michelson, 2017). Messaris (2009) encourages critical thinking when assessing images of all kinds.

Visual literacy, or the idea that images communicate meaning, is slowly becoming recognized as a branch of language that teachers and students need to acknowledge and understand. This includes being alert to visual messages and critically

reading or viewing images as the language of the messages (Stokes, 2014). To obtain this objective, educators can teach students to “learn to use symbol systems, including images, sound and music, as a means of self-expression and communication” (Hobbs, 2006, p. 15). Fisher, Frey, and Hattie (2016) focus on the effects of teaching literacy in the visual learning classroom. Stafford (2011) describes how teachers can use comic books, film, television, and picture narratives in their classrooms. Educators have resources that include these visual literacy frameworks but working them into the classroom is the main concern.

### **Visual & Digital Literacy in the Classroom**

Living in an image-saturated world does not mean students can naturally possess complex visual literacy skills, just as watching the same movie 100 times does not teach someone how to critically analyze or become a producer. Instead, visual literacy involves the ability to understand, produce, and use culturally significant images, objects, and visible actions (Felton, 2008).

Young people spend more of their time with image-based media than ever before (Kaiser Family Foundation, 2010). Through encounters with image-based media, young people regularly create meaning and knowledge through images and visual media. Yet, participation in a highly visual culture does not in itself prepare students to engage critically and effectively with images and media in an academic environment (Hattwig et al., 2013). With this 21st-century skill, students inside classrooms are consistently asked to produce projects and intellectual work using visual media without a clear understanding of how to use visual literacy to create meaning (Tillmann, 2012). First, students must develop the skills needed to find, interpret, evaluate, use, and produce

visual materials in a scholarly context. Now more than ever, with the growing use of visual texts, visual literacy skills in the classroom are needed (Tillmann, 2012).

Classrooms offer many opportunities for students to process information linguistically: listen to lectures explaining content, read and write about that content, and other instructional methods. However, students have fewer opportunities to process information nonlinguistically (Marzano, 2017). Paivio (1990) explains learning involves “verbal systems specialized for dealing directly with language, and a nonverbal (imagery) system specialized for dealing with nonlinguistic objects and events” (p. 306). Creating a space in classrooms that parallels linguistic and nonlinguistic learning, teachers can combine both learning techniques that will result in a deepened processing approach for student learning (Paivio, 1990).

Studies suggest that instruction using both linguistic and nonlinguistic strategies have a positive impact on student learning. Haystead and Marzano (2009) conducted a meta-analysis of nonlinguistic and linguistic strategies across 129 classrooms where teachers used nonverbal strategies, such as graphic organizers, sketches, and pictographs. The average effect was a 17 percentile point gain in student achievement (Haystead & Marzano, 2009). Using visual literacy in classrooms demonstrated a higher student achievement. Educators should understand that the human mind processes both linguistically and nonlinguistically and, therefore, creates room in their curriculum for the teaching of visual literacy (Paivio, 1990).

### ***Obstacles and Challenges in the Classroom with Digital Literacy***

Some argue (Sanders, 2001; Taras, 2002) that secondary education is failing to cultivate and encourage critical, higher-order thinking and, according to Taras (2002),

failing to develop learners that can think on their own, focusing more on the attainment of objectives and less on improving learning. Teaching is more than the focus on students reaching objectives. Being able to transfer skills from the classroom to the world around students should hold a higher role. If students understand how to transfer literacy skills, then school is not only teaching them how to read literature, but to read websites, advertisements, videos, and any number of other “texts” as critical thinkers (Wagner, 2012).

The digital age has shown society that communication can change rapidly and unpredictably, with new languages, tools, and mediums of communication emerging in ever shorter time frames (Wagner, 2012). These new methods have shown to be problematic in regard to teaching literacy, let alone teachers being able to anticipate what future technologies will emerge. Perceptions that the arts and visual texts are difficult to incorporate into ELA instruction are “often misguided or overstated, based on assumptions that the teaching of visual texts requires both teachers and students to learn new skills” (Wagner, 2012, p. 8). Contrary to this perception, students utilize the taught skill of analyzing literature towards evaluating image-based texts. The successful “reading” of a visual text uses the same vocabulary, comprehension strategies, and analytic processes as the reading of a word-based text (Wagner, 2012).

Although visual texts and media have become abundant in our society, words and text still dominate literacy efforts within education. According to Flood and Lapp (1997/1998), the best reason most teachers give for not including visual arts within the classroom is their fear that it would take time away from traditional reading and writing skills. Visual literacy is essential for 21st century learners and those who teach. The

visual reality of the world is often not reflected in the classroom experiences of students, creating little opportunity for them to learn how to be critical "readers" of the visual texts that fill their lives (Walsh-Moorman, 2018). It is critical that students develop skills to create and utilize visual grammar to communicate and contribute to a global dialogue (Laundy & Stephens, 2015).

### **History of Note-Taking**

Over the years, note-taking has evolved into many different forms—oral, written, or electronic. Note-taking could include some of the earliest known forms of writing, starting with the stones marked with notches in Mesopotamia to record grain storage and trade (*c.*3500 BCE) and the clay tablets generated by the administration of the Assyrian empire in the third millennium BCE (Blair, 2010). In Europe, during the years 1550-1750, they experienced an "information explosion" when the "production, circulation, and dissemination of scientific and scholarly texts accelerated tremendously" with estimates that the typical scholarly library grew by a factor of 50 (Leong, 2018, p. 88). With scholarly libraries growing, many published lectures and textbooks from the Middle Ages originated with notes taken down by students (Blair, 2010).

Note-taking was taught in schools as early as the 1500s and occurred in two different ways. Students either studied the Latin classics under a teacher who commented and taught the text while the students were writing down what he was saying, or students read independently and took their own notes to be examined by the teacher at a later time (Blair, 2010). These conventions and traditions of note-taking in the classroom have remained basically unchanged for hundreds of years. In the 1960s and 1970s, note-taking and note-writing revolved around "cognitive variables, such as attention, memory,

comprehension, and so on” (Haghverdi, 2010, p. 72). These cognitive variables implied comprehension and production. Note-taking in these decades revolves around memorizing what was copied down. Critical engagement with new material being taught was missing. This leads to a mere focus on memorization rather than learning. Evolving from what was taught in the 1970s, note-taking became interactive with strategies such as guided notes, or, as labeled in the 1970s, skeletal notes (Klemm, 1976). Students started to question and dive deeper into what they were learning since they had to actively engage with their note-taking.

Moving into the 1980s and 1990s, research focused on the relationship between quality of notes and significance of learning (Haghverdi et al., 2010). Researchers analyzed the quality of how students were taking their notes. In these eras, researchers investigated whether different note taking methods produced different learning outcomes for students. For instance, investigators investigated the effects of color-coding, symbols, and shorthand (applying codes for different words). Rather than simple rote memorization, the emphasis shifted to how students were portraying these notes and the methods that they used to copy them down. In a recent study, researchers found that note-taking improved learning and increased understanding through active engagement in note-taking with the content (Bohay et al., 2011).

Currently, note-taking research has shifted to “what really happens in the classrooms when teachers aim at promoting certain note-taking forms” (Haghverdi et al., 2010, p. 90). Common note-taking forms include Cornell, Outlining, Mapping, Guided Notes, and Charting. With these note-taking methods, teachers can facilitate the elaboration of information and restructuring of the notes’ content, such as selecting key

points and paraphrasing. Selecting key points may deepen students' analysis of the lesson being taught to improve understanding of the content (Chen, 2019). Ideally, educators learn about these methods and select the best way to present notes to their students based on the learning context.

### ***Cornell***

In the 1950s, Walter Paulks created what came to be known as Cornell Notes at Cornell University. These notes consist of students dividing their paper into two columns. Key points and vocabulary terms in the left column, whereas paraphrased notes, reading material, or videos are written in the right column. Underneath the columns, students write a brief summary of their notes and create any impending questions.

The Cornell Note-Taking System involves writing questions in the margin to summarize large chunks of information. The learning system relies on a revision technique called "recitation" where students answer the questions, then, without looking at their notes, recall what they have learnt (Kim, 2019). However, the Cornell Note-Taking System may be redundant to students who rely more on applying information, rather than memorizing their notes (Kim, 2019). Recently, users of Cornell Notes started to modify its strategy to incorporate adding images, such as sketchnotes, to help aid in understanding (Chin, 2015).

### ***Outline***

Outlining notes consists of using heading and sub-headings to break up notes into topics and sections. Students can place major points farthest to the left and then indent each more specific point to the right. Levels of importance are indicated by distance away from the major point. Indentions can be as simple or complex as labeling the indentions



with Roman numerals or decimals. Markings are not necessary, as space relationships will indicate the major/minor points. Advantages to this method are brief, main points are easily recognized and less space is occupied so that notes appear simple. However, this type of note-taking requires practice for mastery, because it doesn't reflect the way humans think (Okafor, 2016).

### ***Mapping***

Wandersee (1990) referred to it as concept mapping; Amer (1994) called it knowledge maps. Although the Mapping Method has been identified by different terms, the strategy remains the same. Concept mapping is a schematic representation of concepts and their inter-relationships often in a framework that appears like a flowchart (Okafor, 2016). The three vital steps involved with mapping are: identifying the key subordinate concepts in a super-ordinate concept, arranging these from general to specific, and relating them to each other in a meaningful way (Okafor, 2016).

Mapping is a method that uses comprehension and concentration skills and evolves into a note-taking form that relates each fact or idea to every other fact or idea. Mapping is a visual graphic representation of the content. It is a method that maximizes active participation, affords immediate knowledge as to its understanding, and emphasizes critical thinking. Concept mapping from a pedagogical viewpoint might be an effective learning tool for science students (Amer, 1994).

### ***Guided***

Guided notes have many forms, including fill-in-the-blank outlines, printed PowerPoint slides, partially completed outlines, partially completed PowerPoint slides, and notes with metacognitive guidance (Biggers & Luo, 2020). Teachers provide a “map”

of the lecture content with key points or missing ideas. Students then fill in the missing information as the lecture progresses, resulting in the students interacting with the learning material. Guided notes during lectures have been shown to be beneficial for high school students, as well as college students (Glodowski & Thompson, 2018).

### ***Charting***

With the Charting Method, the information can be organized in several columns, like a table or spreadsheet. Each column can represent a unique category which makes the rows easily comparable. This method helps students reduce the amount of necessary writing and provides easy review mechanisms for both memorization and comparisons (Okafor, 2016). With charts, students must be able to understand what is happening in the lecture and be able to create connections on their own along with creating categories that they must prepare ahead of time.

### **Note-taking as a Learning Strategy**

Accurate note-taking is an important ability for success in secondary education classrooms. To be a great note-taker, Ilter (2017) explains it involves coding, organizing, and storing important information pieces in the working memory using main ideas, short sentences, symbols, or abbreviations on paper or on a technological device to understand the content. Austin, Lee, and Carr (2004) have noted that note-taking is a process of comprehension, analyzing, and synthesizing that requires the recording of important pieces of information.

Typically, course content in most secondary classrooms is instructed through readings, discussion, and lecture (Sweeney et al., 1999). Note-taking is a way of concisely recording information to help with later recall. Effective note-taking is an

important, lifelong, transferable skill that can be applied academically, socially, and professionally (Robinson, 2018). The strategy of note-taking in a classroom is not a new concept. It is one of the many tools that teachers use to help students understand content curriculum. Note-taking is defined by Larsen-Freeman and Long (1991) as “writing down the main ideas, important points, outline or summary of information presented orally or in writing” (p. 202). Note-takers take notes to fulfill two major functions: to record information and to aid reflection (Boch & Piolat, 2005). As expressed by Piolat, Olive, and Kellogg (2005), “Note-Taking is a complex activity that requires comprehension and selection of information and written production processes” (p. 291).

Research shows that taking notes in class and reviewing those notes has a positive impact on student learning (Stutts, et al., 2013), and students that take notes score higher on both immediate and delayed tests of recall than students that do not take notes (Kiewra, et al., 1991). In the 1960s and 1970s, an educational effort called Writing Across the Curriculum (WAC) developed. WAC emphasizes the role that writing can play in learning, whether it's annotating a text, creating margin notes, journaling, or reflection writing. Note-taking skills cross over all disciplines and have the two characteristics of WAC: note-taking helps students learn and note-taking helps students learn to write (Boch & Piolat, 2005). Note-taking is an essential tool and a staple practice within education.

### ***General Issues with Note-taking***

Note-taking is a complex and multi-faceted process which often leads to students taking poor or incomplete notes. For many students, note-taking is a complex and difficult task. It requires information to be stored in working memory and held there

while the learner continually moves from listening or reading to capturing what is heard or seen (Boyle, 2012). Research indicates that students fail to record approximately 40% of the important points in a lecture (Hartley & Cameron, 1967; Howe, 1970).

Additionally, when students take numerous notes, their performance often becomes more reading and memorizing (Yamada, 2018). Students, as mentioned in the problem statement, are not always effective note-takers. Teachers present notes for students to learn, yet Yamada (2018) researched those students can get by on rote memorization and forget the learned content weeks later.

Despite its popularity, note-taking is a complicated and multi-faceted process that can frequently leave students with unelaborated and inadequate notes (Peveryly, Marcelin, & Kern, 2014). Studies have found that students' notes may include as little as 11 percent of the crucial information in a classroom lecture (Kiewra, 1985; Raver & Maydosz 2010). Unfortunately, note-taking is a high-cognitive load task, requiring students to move content from their sensory memory to their working memory and, ultimately, to their long-term memory. At the same time, students are asked to think critically about the content (Biggers & Luo, 2020). Because of these variables, research is mixed regarding the best types of note-taking and whether the "process" of taking notes is actually the critical factor (Stacy et al., 2015). Note-taking is an individual task, and individuals have different strengths and weaknesses. Some students might be more organized, while others might be more skilled in shorthand.

Every teacher has the potential to present their notes in many different mediums. Each teaching platform has its own positives and negatives, with student format preference differing (Stacy et al., 2015). These formats, such as lecture, prescribed, and

digital, alter how students take notes, not allowing students to “master” their note-taking ability. Lecture note-taking is cognitively demanding, and students may have difficulty recording all vital information points or may record them inaccurately (Stacy et al., 2015). As mentioned above, Cornell and Outline, prescribed note-taking methods, focus on memorization instead of learning. Now, digital note-taking is slowly making its way into the classrooms with student using laptops and iPads. Possibly the biggest concern with student use of laptops in class is computer-aided distraction. The lure of multi-tasking on those devices can significantly hinder student comprehension of classroom lectures (Stacy et al., 2015). Note-taking is an assumed skill that students usually learn by trial and error; yet, through a survey, it was discovered students wanted more help with learning how to take good notes (Van Der Meer, 2012). Identifying issues with note-taking could help provide teachers insight into which format and technique works best for student learning. Educators should start evolving the way they present notes to their students, just as students are evolving in the way they learn information (Chen, 2019).

### ***Sketchnotes as a Visual Note-taking Method***

As stated earlier, images are coded differently from words in the brain. These nonlinguistic representations boost student achievement with the use of sketches, graphic organizers, and pictographs (McGregor, 2019). According to Marzano (2010), there are five main points to keep in mind when it comes to nonlinguistic representation of notes:

- (1) Nonlinguistic representations come in many forms.
- (2) Nonlinguistic representations must identify crucial information.
- (3) Students should explain their nonlinguistic representations.
- (4) Nonlinguistic representations can take a lot of time.

(5) Students should revise their representations when necessary. (p. 33)

Sketchnotes combine these five nonlinguistic approaches to learning, while also including linguistic approaches. Students are using both sides of their brains to comprehend the ELA curriculum. Sketchnoting makes thinking visible, includes linguistic and nonlinguistic representation of information, allows for student choice, strengthens memory, makes annotation thinking intensive, enhances focus and reduces stress, and embraces design (McGregor, 2019). There are many ways that sketchnotes can be useful that do not require being an artist. The goal of sketchnoting is to actively engage students into compiling their thoughts or ideas, creating personal connections to the learning material, and producing a structure to their notes that make sense to them as individuals.

An important point of the Sketchnotes may be the non-linear element that is unlike a typical note-taking method. Piolat and colleagues (2005) identified that nearly all non-linear note-taking strategies benefit learning outcomes more than the linear recording of information. Graphs and concept maps that foster the selection and organization of the information should be prioritized (Piolat et al., 2005).

Harvard professor David Perkins (2003) illuminates,

Imagine learning to dance when the dancers around you are all invisible. Imagine learning a sport when the players who already know the game can't be seen.

Bizarre as this may sound, something close to it happens all the time in one very important area of learning: learning to think. Thinking is pretty much invisible. To be sure, sometimes people explain the thoughts behind a particular conclusion,

but often they do not. Mostly thinking happens under the hood, with the marvelous engine of our mind brain. (p. 1)

Perkin (2003) brought to light the importance of visualization and thinking. The pair goes hand-in-hand, and, when students can use both, it could be powerful. Visual texts can play an important part in learning. Humans are typically visually oriented, and the retention of information presented in visual form usually exceeds the retention of information presented verbally (Levie & Lentz, 1982). Sketchnotes present the benefit of whole class learning. Other students can see how their peers' made connections and how they personally think. Sketchnotes engage students with their notes, resulting in higher engagement and leading towards motivation.

Although the use of sketchnoting is a recent phenomenon as a note-taking strategy, the concept of it has been around for centuries, as people, such as Leonardo de Vinci, William Blake, Pablo Picasso, and Bill Gates, have all been said to have used it (McGregor, 2019). Artists, writers, inventors, and others who were considered to be a “genius” usually have visible, visual thinking that is created and sketched on paper and scraps. Sketchnoting, as an innovation in the classroom, could provide students with a way to engage with their notes. It creates an interactive note-taking outlet. As Ilter (2017) explained, using sketchnotes, students could become great note-takers.

### **Common Core State Standards**

What is more, the incorporation of visual texts into ELA curriculum better aligns instruction with the Common Core State Standards (2010; Wagner, 2012). While using a note-taking tool, such as sketchnoting, the students can visually identify the key ideas and

details of the text and begin to gain confidence in their ability to comprehend the text being read on an individual or collaborative level.

From the start of third grade, the Common Core State Standards (CCSS) in Writing includes, “Recall information from experiences or gather information from print and digital sources”, “Take brief notes on sources and sort evidence into provided categories” (p. 35), and “Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations” (p. 49). Sketchnotes can cover multiple note-taking standards. Image-based texts are an integral part of the standards, perhaps because others have likewise realized their importance to workplace success (Wagner, 2012). The alignment with CCSS has naturally focused Secondary English departments’ attention on the use of image-based texts and visual texts. These standards explicitly reference different visual mediums.

Similarly, teachers can use sketches as an instrument to identify areas where comprehension is deficient. This strategy asks the brain to interact in a multisensory and multimodal learning way. Students are not all one-size-fits-all when it comes to their learning. Thus, teachers should allow for these multisensory and multimodal learning activities (Carter, 2019).

### **Student Efficacy and Motivation**

When students are interested, they engage for a longer period, put in more effort, and use deeper and more active processing. Bandura (1986) defined self-efficacy as “people’s judgements of their capabilities to organize and execute courses of action required to attain designated types of performances” (p. 391). Students who believe they can complete an assignment successfully are more willing to start the task in the first



place. While using a tool, like sketchnoting, the students can visually identify the key ideas and details of the text and begin to gain confidence in their ability to comprehend the text being read on an individual or collaborative level (Treptow, 2020).

Kennedy (2009/2010) claimed, “Children’s levels of motivation, engagement, and sense of self-efficacy are instrumental in determining the extent to which they will engage in literacy activities both inside and outside of school” (p. 1). A challenge of schools is to foster students’ desire to figure things out, successfully understand what is learned, and to use that motivation to spark future learning (Bransford et al., 2004). When students enjoy what they are doing and it is relevant to them, it increases their interest and motivates them to learn (Thomas, 2014).

Andrade (2010) found that concentration in the classroom was higher when doodling with a 29% improved recall. When Alexis (2016) used sketchnotes in her classroom she found that sketchnoting gave her students a voice. They were allowed to be themselves within their drawings. The visual nature of the work facilitates easier and deeper critical thinking, by making connections to concepts that lead to rich reflections. Bandura’s (1986) definition of self-efficacy showcases how students need that voice in their performance. Instructional activities involving graphic aids help learners access earlier knowledge, restructure that knowledge, and place the new information into memory (Rakes et al., 1995). With the use of ids, graphs, maps, and other methods it increases student efficiency (Rakes et al., 1995).

Alexis (2016) similarly found that sketchnoting created powerful opportunities for students to defy a fixed notion of their own abilities. She questioned, “If they are wrong about a perceived lack of artistic talent, how else have they been underestimating

themselves?” (Alexis, 2016, p. 17). “I can’t draw” will be a student complaint when it comes to sketchnotes. Yet, teachers can empower students to develop agency and self-efficacy by creating their own approaches to learning (Zucker, 2019).

Students need to feel motivated inside the classroom; motivated to learn, create, and engage. Motivation, or “any force that energizes and directs behavior” (Reeve, 2012, p. 150), is at the heart of why people choose to behave in a specific manner or to complete certain tasks. Student motivation towards learning and completing their notes could potentially be increased by sketchnotes, because students are able to create their notes in their own creative outlet and care about creating personal connections to what they are learning. This could potentially be the first time they are creating those personal connections with their notes. Students are more likely to internalize and “take ownership” of the practices of those to whom they feel connected and in contexts where they feel a sense of belonging (Niemic & Ryan, 2009).

### **Gaps in Literature**

Sketchnoting is slowly making its way into the secondary educational world. Most elementary schools use visual note-taking as a tool, although it seems to decrease as students move toward high school education. For most students, sketching skills are far less developed than writing, and, as a result, many students shy away from using sketching as the powerful tool it is for thinking, articulating, and communicating ideas with their peers (Nørgaard, 2017).

Within this review of the literature, there is a gap in regard to sketchnotes improving students test scores. Treptow (2020) found, “As student perception of sketchnoting being meaningful to their reading increased, there was also an increase in

both their motivation and self-efficacy for reading” (p. 85). Her study focused on student efficacy when it came to sketchnoting, but it did not incorporate exam averages. When students found value in their sketchnotes, their reading motivation increased.

### **Summary and Conclusions**

In this chapter, a review of the literature provided a foundation on the research in note-taking, visual learning, digital learning, and sketchnotes. Foundations and research were extended to show a brief history and development of literacy. This present study intends to fill the gap of using sketchnotes as a visual note-taking tool leading towards higher student achievement. The methodology used in this study is located in Chapter Three with findings and implications located in Chapter Four and Chapter Five, respectively.

### **Chapter 3: Methodology**

The purpose of this qualitative case study was to analyze and explore the perceptions and experiences of participants with visual note-taking (sketchnotes). This study determined if using sketchnotes promoted a deeper understanding of the ELA curriculum. Chapter Three dives into the methods of data collection and analysis. This chapter allows one to visualize how this study evolved and allow further exploration into the field of visual note-taking.

#### **Research Design and Rationale**

Educators are asked to continually evolve, introduce, and craft new and unique ways of teaching. These new techniques always have students at the forefront. Case study research analyzes real-life situations over a period of time using a variety of data sources with the goal of providing an in-depth understanding from multiple perspectives (Creswell, 2018). The research question for this study was:

How does the use of sketchnoting as a note-taking method within an 11th grade English Language Arts classroom affect the student's understanding of Realism within the American Literature curriculum?

Case studies focus on the action of what is being studied, while trying to reach a deeper understanding of people's actions in regard to a phenomenon within a bounded system in action. The bounded system was my classroom. Merriam (1988) instructs a classroom is spatially bound in a formal institutional setting with an established space, set schedule, shared expectations, and often a prescribed curriculum. Humans are passive receivers of experiential information, but active builders of their own experience into knowledge

structures through which they then interpret and navigate the world (Sadoski & Paivio, 2013).

### ***Case Study Research***

Research methodologists do not have a consensus on the design and implementation of case study, which makes it a contested terrain and hampers its full evolution (Yazen, 2015). Yin (2002), Stake (1995), and Merriam (1998) are the three influential authors who provide procedures to follow when conducting educational case study research (Creswell, Hanson, Plano, & Morales, 2007) that aid educational researchers to construct a roadmap in their utilization of case study (Yazen, 2015).

Yin (2002) defines a case as “a contemporary phenomenon within its real-life context, especially when the boundaries between a phenomenon and context are not clear and the researcher has little control over the phenomenon and context” (p. 13). Yin’s (2002) definition mentions the researcher not having clear context and little control. My case study was in the bounds of my own classroom that I have control over. Yin (2002) also puts emphasis on the process: “In actuality, the demands of a case study on your intellect, ego, and emotions are far greater than those of any other research strategy. This is because the data collection procedures are not routinized” (Yin, 2002, p. 58). The gathering data aspect and the planning phase of data collection was not the focal point of my research. The routine of my classroom allowed for me to have routine within my data collection.

Contrary to Yin (2002), Stake (1995) places emphasis on a more flexible design that allows researchers to make major changes in their case study (Yazan, 2015). In a Stakein case study, researchers need a set of two or three sharpened or evolved issue

questions (research questions) that will “help structure the observation, interviews, and document review” (Stake, 1995, p. 20). My case study focused solely on the implementation of sketchnotes in the classroom and their direct effects on assessments. Stake (1995) also argues “There is no particular moment when data collection begins” (p. 49). Within this study, there is an exact moment of data collection, as sketchnotes are a defined intervention that took place during the Realism time period of an instructional unit within American Literature.

My case study followed Sharan Merriam’s (1998) approach because of the way she defines a case study. Her qualitative case study definition focuses on “analysis of a bounded phenomenon such as a program, an institution, a person, a process, or a social unit” (Merriam, 1998, p. 13). I studied a bounded process, along with my students. Merriam (1998) provides more comprehensive guidance for data collection, such as collection tools that I preferred to use in my study. Merriam’s (1998) case studies utilize three data collection techniques: conducting interviews, student self-assessment, and analyzing documents (Merriam, 1998). These data collection methods showed students perceptions of their learning, academic performance--actual learning, and participant perspective of the phenomenon Epistemological commitments fall under constructivism and are “an intensive, holistic description” (Merriam, 1998, p. 13).

### ***Role of the Researcher***

Within this case study, my role as the researcher was participant and observer. I was directly working with the students to help them understand the concept of sketchnoting and exhibiting strategies that could help them create their visual connections to their notes. Therefore, I was directly participating with the students during the start of

the research process. I administered the interviews and also acted as the interviewer, conducting interviews during the participants' lunch and before or after school. As the teacher researcher, I was responsible for developing and instructing the students regarding sketchnoting and assessing their student progress. Throughout this process, I was a teacher researcher in pursuit of creating a deeper understanding of the ELA curriculum.

This study took place in a highly rated, large suburban, public High School classroom located in North Georgia. This site is also where I currently teach, or as Glesne (2016) explains, "backyard research" (p. 48). In the year 2018-2019, there were 2,407 students enrolled at this school. The demographics consisted of 13.8% Hispanic, 8.8% African American, and 72.1% White.

### **Methodology**

The key to understanding qualitative research lies with the idea that meaning is socially constructed by individuals in interaction with their world (Merriam, 1998). Methodologically-sound case studies benefit from having multiple sources of evidence (Merriam, 1998). Thus, in my case study, I included two document analyses and 6 interviews from one class period.

### ***Participant Selection Logic***

This qualitative case study involves an up-close detailed examination of how sketchnoting promotes a deeper level of learning. Case study pinpoints a specific unit of analysis, that is why I used the high school where I teach and the students within it. Case study also uses information-oriented sampling or purposeful sampling. Thus, by using my high school and my own students, I was able to select the participants that I feel would be

the best for this research. Merriam (1998) clarifies that, when using purposeful sampling, it is important to select a sample from which the most can be learned.

My group of participants included one class period of 29 11th grade students. From those 29, I selected six participants to participate in the case study. Using students based on different identifications helped improve the diversity of my sample. Various levels of students served as a stand-in for an entire population. These students were selected based on their identifications in the school: Gifted and Talented, On-level, Struggling, and Student with a 504. Gifted and Talented students are identified as students who are performing at a higher level than students their age. On-level students are performing where they should be at their age. Struggling students are students who have failed a previous class. Students who have a 504 Plan are students who have been identified with a disability but do not require specialized instruction to be successful but do require accommodations to provide equitable access to successful learning.

Before the unit, the students were asked if they would participate in the research study. When they accepted, a parent consent form was sent home. When those were returned to the researcher, the participants' consent forms were distributed. Students were given time to read over the forms and ask any questions before indicating consent.

Prior to the data collection, approval from Kennesaw State University IRB was required (Appendix F). Permission was obtained from my school district to conduct the study (Appendix G). The consent forms were collected, and the students who agreed to participate in the study were informed of the data collection methods.

## **Procedures**



In qualitative research, data analysis is simultaneous with data collection (Merriam, 1998). Data collection for this research relied on document analysis and interviews. First, participants learned how to complete a sketchnote. After their visual note-taking lesson (Appendix A), participants completed a practice sketchnote containing elements about their summer. They had two-three days in class to complete this practice sketchnote. The researcher then provided feedback based on Rohde's (2013) three main criteria: text, images, and structure. Students should have a balance of text to images, not only providing all image-based texts. The sketchnote must present notes through an organized structure, such as having each note or curriculum concept bundled together, not placed in random places on the sketchnote. I closely examined images to double check that participants were making personal connections and creating visuals to display those connections before moving onto the case study.

After the sketchnote practice, I moved onto the curriculum's unit of study, Realism in American Literature. During this unit, the case study started. Towards the end of the unit, the participants created a sketchnote based on their completed notes from the unit of study.

Before participants took the unit summative assessment, I created a sketchnote rubric that the students used to complete a self-assessment (Appendix B). This showed me the participants' perception of their learning through the visual note-taking. Participants self-assessed how their visuals connected with the English curriculum, providing data that shows a personal connection to learning material. Starting with the rubric document analysis, I started analyzing this data right away. Simultaneous data

collection and analysis allowed me to adjust along the way (Merriam, 1998). Figure 1 illustrates how the rubric assisted in the analysis of my data.

Rubric Explanation		
Sketchnote Rubric Criteria	Images or ideas that could appear on Sketchnote	Explanation
American Literature Time Period and date	<ul style="list-style-type: none"> <li>• Clock</li> <li>• Banner with time period name</li> <li>• Bolded time period to make sure researcher knows it is the title</li> <li>• America</li> <li>• California</li> <li>• The word "Realism" biggest on the page so it is recognized as a title</li> </ul>	<p>The time period and date are considered the "title" of this sketchnote. It is expected that this would be the biggest, or the most distinct word on the sketchnote.</p> <p>Students may incorporate an image with the title that includes something to do with Realism.</p>
Elements of Realism in Literature	<ul style="list-style-type: none"> <li>• Book</li> <li>• Example of clear, connectable language (y'all)</li> <li>• Someone saying a phrase in a speech bubble</li> <li>• An arrow connecting something</li> <li>• An image of the area with a language example (y'all pointing to an outline of Georgia)</li> <li>• A story title/book</li> </ul>	<p>Students should include how American's wanted to read clear language that they could connect to. This is an area where students should connect a visual to the curriculum content.</p>
Main elements of Realism (Local dialect/everyday language; real everyday characters; everyday events; sense of place; intense detail)	<ul style="list-style-type: none"> <li>• Five senses</li> <li>• Characters/plots</li> <li>• An example of their local language</li> <li>• Events that take place everyday</li> <li>• Stick figures</li> <li>• Clock</li> <li>• Road</li> <li>• World</li> <li>• Gold tooth</li> <li>• Goldmining</li> <li>• Old clothes</li> </ul>	<p>Content from the Realism unit should appear as visuals or words. Students may connect these words to their lives or illustrate the main elements of Realism. On their sketchnote I should see image or words that incorporate local dialect, real characters, etc.</p>
Historical references (How did Realism start, what was the American's focus at this time)	<ul style="list-style-type: none"> <li>• Arrows from Romanticism to Realism</li> <li>• Examples of events that historically happened</li> <li>• Nature to death</li> <li>• Flowers to gravestone</li> <li>• Someone moving</li> <li>• State to state</li> <li>• Real events</li> </ul>	<p>Moving from the Romantic time period, students should showcase why Realism started. They can illustrate Romanticism with nature and then draw an arrow to a goldmine or dusty trails. They should also showcase the focus of real connectable characters with connecting real people from their lives, or real issues they go through.</p>
Unit Vocab (Naturalism and Regionalism)	<ul style="list-style-type: none"> <li>• Bolded words</li> <li>• Expressive fonts</li> <li>• Home</li> <li>• Shape/frames</li> </ul>	<p>Using important unit vocab, students should bold or underline these words. I should see how important they are to the unit.</p>
Unit Stories ("Poker Flat", "Maggie", "Red Badge of Courage")	<ul style="list-style-type: none"> <li>• Mountains</li> <li>• Solider</li> <li>• Grave</li> <li>• Church</li> <li>• Poker chip/card</li> <li>• Horse</li> <li>• Beggar</li> <li>• Death</li> <li>• Dying grass</li> <li>• Worms on a dead body</li> <li>• Money</li> </ul>	<p>Students need to remember stories from this unit so by using images that showcase the important parts of the story hopefully they can remember these items on the test. Students are able to select/draw images that they could remember on the test.</p>
Elements of a Sketchnote		<p>How did they organize their sketchnote to make sense to their understanding? I am looking for the use of texts, images and structure. I am also looking for a balance of text to images. The sketchnote should not be one or the other</p>

Figure 1: Rubric Analysis

From there, participants completed a summative assessment that showcases material from the unit that should be present on student's sketchnotes (Appendix C). This summative assessment, along with participants' sketchnote, was used for a document analysis. The students were not able to use their sketchnote on the assessment, using it

only for studying purposes. This was a cross-comparison between the sketchnotes and the summative assessment to help determine how the sketchnotes contributed to the participant's overall performance. I analyzed how participants' academic performance exhibits their actual learning. Figure 2 showcases the comparison.

**Analysis of Implemented Sketchnote Elements shown through Assessment Questions**

**Test Format A (B form questions in parentheses)**

Assessment Question	Implemented on Sketchnote
6. (#18) How did Realism start?	The rubric asked the students to add why Realism started from Romanticism.
7. (#19) Naturalism, a branch of Realism _____	Students had to define Naturalism on their sketchnote. Noting the unit vocabulary
8. (#20) Which of the following is an not an element of Realism?	Elements of Realism should be represented on their sketchnote.
9. (#21) Which of the follow quotes is an example of Realism?	Local color, dialects, everyday language and people are elements on the sketchnote. Remembering the images that students added on their sketchnote to show these elements students should remember these concepts.
10. (#22) True or False: A typical character in a Realist piece of work would be highly educated and from the upper class.	Found on their sketchnote should be the words ordinary and everyday events.
11. (#23) Local color is _____.	Students needed an example of local color on their sketchnote. Through this example they should remember what local color is.
12. (#24) The following quote is an example of what element of Realism? "Ah, come off! I got dis can fer dat ol' woman an' it 'ud be dirt the swipe it. See?" cried Jimmie."	This question is asking the students to remember local color, which is an element of Realism. Local color was required on their sketchnote.
13. (#25) In the following passage, what literary technique does Crane <i>most</i> utilize to develop a sense of place?  <i>Above the muffled roar of conversation, the dismal wailings of babies at night, the thumping of feet in unseen corridors and rooms, mingled with the sound of varied hoarse shoutings in the street and the rattling of wheels over cobbles.</i>	Crane draws upon the sounds of the area so the reader can infer that the area is very poor. Sense of place was a sketchnote criteria in where students could illustrate their own connection to a place.

Figure 2: Cross-Comparison Assessment Analysis

Finally, participants completed a 30 minute, 10 question interview that dove into the student's experience with sketchnotes and visual note-taking (Appendix D). Words

and pictures aided in the richly descriptive product to help convey what the student should have learned about this phenomenon [sketchnotes] (Merriam, 1998).

This combination of collected data was used to help examine the full experience participants had with visual note-taking and their perceptions of how it influenced their learning. Merriam (1998) expounded how investigating complex social units consists of multiple variables of potential importance in understanding. The visual note-taking phenomenon investigated these multiple variables. This data helped to uncover the case study being researched.

### ***Initial Instruction Before Data Collection***

The research began with instruction led by the researcher to the entire class on visual note-taking. Students received a handout with guided notes, provided by the researcher, so the visual note-taking could be scaffolded since this could be the first time students completed visual notes. While the researcher played a visual-note taking YouTube video, students followed along with their provided guided notes. The visual note-taking instruction contained information on basic design elements such as structure, shapes, illustrating people, emphasizing text, and creating connections to create unique personalized images. A more detailed lesson plan about the visual note-taking instruction can be found in Appendix E. Figure 3 is an example from the video that students witnessed as an example of visual note-taking.

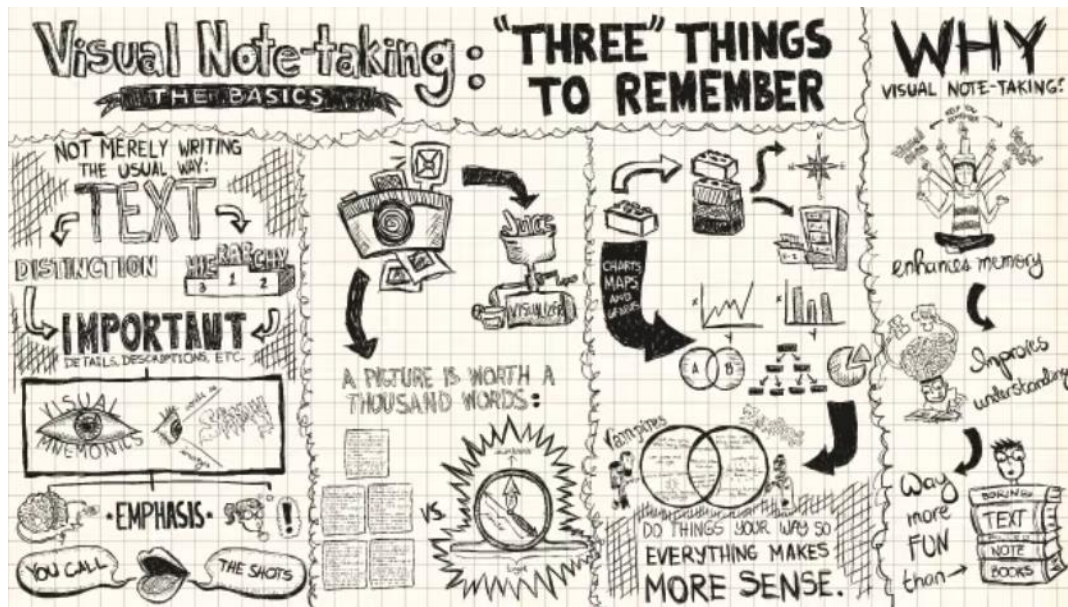


Figure 3: Visual Note-taking Example

After watching the visual note-taking video, participants proceeded to watch a TED Talk about perceptions when it comes to illustration. The TED Talk walked them through how illustration should not be something scary to non-artists, and everyone can draw. This video was an important part of learning visual note-taking, because it showed students that their perception of illustrating can be altered. At the end of the visual note-taking lesson, all participants were tasked with creating a visual note on how their summer was. As the researcher, I demonstrated an example on the board. This example is mirrored from Figure 3. Doing this, they were able to make connections from their personal situations and create visual-based texts to it. They could do this, because deeper learning happens when students process connections between images and words (Leopold & Mayer, 2015). Following the creation of the visual notes, participants ended the class with sharing something from their summer that they created into a visual. As mentioned above, students composed a practice sketchnote before moving onto the unit of study.

### ***Student Sketchnote Rubric Document Analysis***

Documents often contain insights and clues into a phenomenon, and they are well worth the effort to examine (Merriam, 1998). The first document that the participants were asked to complete was a sketchnote rubric. Each of the participants were asked to create a sketchnote based on what they learned in the unit. This sketchnote needed to include: The title of the American Literature Time Period, important dates, one to two examples of literature during the period, key terms and elements, key standards, and sketchnote structure. Participants were provided a rubric (Appendix B) to help guide them through the sketchnote material and to notice if their created visuals connected to the English curriculum content. If the visuals did not, and the participants recognized this, they might have realized that they do not understand the material, and, thus, leading them to a deeper understanding of the unit's material. Through this perception of learning, participants observed how their sketchnote contributed to their learning. Participants had the option to revise their sketchnotes, but graded rubrics were handed in for data analysis (Figure 1).

This data was collected after the students analyzed their sketchnotes. It was collected in class after participants had a class period to conduct their analysis. This happened once, unless a participant was absent, then they turned in their analysis at a later time. The researcher collected this data at the end of the class period and put it in a locked file cabinet.

### ***Sketchnote and Assessment Cross-Comparison Document Analysis***

The second data collection was also a document analysis. I completed a cross-comparison between the sketchnotes from the unit and the units' summative assessment to determine how the sketchnotes contributed to the participants overall performance. I

examined how participants scored on the summative assessment and if their visuals on their sketchnote reflected the correct assessment answers.

Before the summative assessment, participants turned in their sketchnotes to the researcher. If a participant was absent, they turned in the sketchnote at a later time. After participants completed their summative assessment, I collected their assessment to use in the cross-comparison. This happened once. Both documents were stored in a locked file cabinet until data analysis was started.

I selected eight assessment questions that solely pertained to Realism in American Literature to analyze along with visuals that should be present on the participants' sketchnotes (Figure 2). If the participants answered questions on the assessment incorrectly, certain visual data from their sketchnote were missing. If the participants received credit for the correct answer, then that visual data were presented on their sketchnote. This analysis showed me the connection of visual note-taking to their summative score.

When reviewing the sketchnotes, I observed whether the students' sketchnotes were completed with evidence of material from the unit. Participants used their Realism rubrics to ensure all Realism elements were presented on their sketchnotes. I observed the participants' ability to understand the key ideas and details from the unit by the summative assessment questions (Figure 2).

### ***Student Interviews***

Merriam (1998) suggests a "semi-structured" approach as a possibility to the qualitative interview. This approach is a mix of open ended and structured questions. Questions were carefully considered, since they are the key to the door of data. I

included four types of questions: (1) introductory questions, (2) transition questions, (3) key questions, and (4) closing questions (Creswell, 2007; Krueger & Casey, 2009; Merriam, 2009; Rubin & Rubin, 2012). The questions during the interview were based on visual note-taking, the use of the sketchnote's rubric, along with the self-assessment, learnt material before an assessment, and not solely focused on the note-taking process. For example, the following questions were presented:

- *How do you feel about visual note-taking now that you have completed a sketchnote? Describe examples to illustrate your answer.*
- *How has sketchnoting aided in your test-taking? Describe examples to illustrate your answer.*

The interviews were conducted during participants' lunch time and before or after school. The questions were pre-determined using an Interview Protocol (Appendix H). Each interview was conducted in person, with the use of a cellphone audio recording the interview. As the interviewer, there was a potential for bias being that I am the teacher and the researcher. My students might have felt inclined to provide me with the answers they think I would want to hear. It was my responsibility to ensure that the students felt comfortable providing their honest answers knowing that their responses would not be taken personally, and it would not affect their grade. Thus, I entered grades before they conducted the interview with me. It was also important to identify my biases and monitor them as to how they may be shaping the collection and interpretation of data (Merriam, 1998).

### **Data Analysis Plan**



After the six week unit, the data analysis took over five days to complete. Focusing on the rubric document analysis, cross-comparison document analysis, and interviews were the priority. First, I created a chart explaining what should have been on the sketchnote if the participants used the rubric as a guide (Figure 1). Using three columns (rubric criteria, images, explanations) as a guide, the analysis was developed. This chart made it clear in understanding what elements were presented versus not. From there, I created a cross-comparison chart (Figure 2) which allowed identification of sketchnote elements to questions on the Realism assessment. Finally, interviews were conducted to receive an insight into the participants' ideals of sketchnoting.

### ***Student Sketchnote Rubric Document Analysis***

Analysis of this data came from multiple read-throughs of participants' sketchnotes. First, the participants received the rubric before they started the creation. Using the rubric as a guide, participants should have incorporated all seven criteria: American Literature Time Period and dates, Elements of Realism in Literature, Main Elements of Realism, Historical References, Unit Vocabulary, Unit Stories, and Elements of a Sketchnote. Before they turned in their sketchnotes, they self-assessed and revised, if needed. Afterwards, I graded the sketchnotes based on those seven different criteria. I noted how the participants used the sketchnote rubric, assessed themselves, making personal notes in the margins identifying why students scored themselves the way that they did. I read through the comments, noting if they personally witnessed missing visuals and if they were missing important notes from the unit. I then sorted and sifted through the rubrics identifying similar grades, relationships between unit notes and visuals, patterns that emerge between participants, and common sequences.

The output of the analysis was a list of themes mentioned from the document analysis (rubric). These themes were discovered by analyzing words and the sentence structures that participants might have used in their rubrics. Using this source, I identified themes in students' comments and how they graded themselves. I also looked for how their rubrics allowed the participants to deepen their understanding of the ELA curriculum by noting the themes. Using the chart (Figure 1), I assessed how the students used the rubric towards their sketchnotes.

### ***Sketchnote and Assessment Cross-Comparison Document Analysis***

Using the selected eight summative assessment questions, I was able to narrow my data. From there, I uploaded the participants' answers to my created cross-comparison data chart (Figure 2) along with the visuals that should be present on the participants' sketchnotes. I compared the participants sketchnote to their answers on the assessment. This chart provided a place for me to detail what participants illustrated on their visuals compared to the answers to their test questions. The cross-comparison chart created a visual representation of how many students got the question right based on the identified visuals on their sketchnotes. My research question reflects on how students use their sketchnotes to promote a deeper understanding of the American Literature unit, Realism. This document analysis showed the parallels between the sketchnote visuals and the summative assessment questions.

### ***Interviews***

Data collected from the in-depth interviews were transcribed using Otter.ai following the edited method from the digital recordings and stored on a digital storage media. Each transcript was then analyzed, coded, and categorized to reveal the common

themes found across the interviews. I utilized ATLAS.ti (Scientific Software Development GmbH, 2020) to assist with coding interviews and analysis of questions using the three-step process: open coding, axial coding, and selective coding (Saldaña, 2016).

First, I transcribed the interviews so that patterns could emerge from answers. I then completed open coding using a code list, color-code, and attach comments to codes for reference. While analyzing data, I used axial coding to reveal groups of codes, categories, and subcategories within the data coming from the participants. This helped construct linkages between data leading to themes.

### **Issues of Trustworthiness**

All participants' interview responses remained confidential and anonymous during the study with participants only being identified by the letter they were given at the start of the research, and data collected were password protected on the researcher's computer.

In the triangulation process, Fusch and colleagues (2018) refer to the importance of using different sources of data, namely by conducting interviews with multiple participants or multiple archive sources. The use of different sources and the triangulation process produces credibility. In my qualitative case study, I utilized three data collection techniques: analyzing documents (self-assessment and sketchnotes), cross-comparison of assessment to sketchnotes, and interviews (Merriam, 1998). Having six participants allowed this study to have a solid foundation towards the credibility of the triangulation process.

The strategy that I used to ensure transferability was “thick description” (Sim and Sharp, 1998). “Thick description” captures the thoughts, emotions, and web of social interaction among observed participants in their operating context (Ponterotto, 2006). Through my interviews, I was able to capture the inner thoughts and emotions of my students by asking probing questions about their sketchnoting process. I also had variation in my participation selection by identifying the participants’ levels of learning.

Confirmability is “concerned with establishing that data and interpretations of the findings are not figments of the inquirer’s imagination but are clearly derived from the data” (Tobin & Begley, 2004, p. 392). A strategy is using peers, or a peer, to look over and examine the research process. According to Bitsch (2005) and Krefting (1991), peer examination helps the researcher to be honest about his/her study, and peers contribute to his or her deeper reflexive analysis. Prior to peer contributions, all participants were labeled with a letter to ensure privacy. Then, colleagues helped to identify the categories not covered by the research questions or to identify negative cases.

According to Bitsch (2005), dependability refers to “the stability of findings over time” (p. 86). Dependability can be established using an audit trail. An audit trail provides readers with evidence of the decisions and choices made by the researcher regarding theoretical and methodological issues throughout the study, which requires a clear rationale for such decisions (Koch, 1994). By keeping records of the raw data, field notes, and transcripts, these records could help future researchers find a clear audit trail within my research. Additionally, the procedures used in this study, including all documents, have been provided.

## **Summary**

This chapter presented the research and methodology of the study. This chapter also recapped the research question, purpose, structure, and how the methodology was planned. The research context, population, and participants were introduced. This chapter also included the procedures and processes followed throughout the collection of data, along with the trustworthiness of this research.

Chapter Four will include the findings uncovered by the data collection methods presented in this chapter. Chapter Five will discuss the study's implications.

## Chapter 4: Findings

This chapter presents the study's findings and provides an analysis of the results framed by the research question presented in Chapter One. Qualitative findings from the rubric analysis, sketchnote, cross-comparisons, and interviews are organized and analyzed below. The purpose of this qualitative case study was to determine if student sketchnoting promotes a deeper understanding of particular concepts within the ELA classroom. Using sketchnotes as a note-taking strategy could bridge the gap between visual note-taking and metacognitive awareness.

Through this chapter, I present the findings from my case study approach to answer the following research question:

How does the use of sketchnoting as a note-taking method within an 11<sup>th</sup> grade English Language Arts classroom affect the students' understanding of Realism within the American Literature curriculum?

The findings indicate that, through using the visual tool of sketchnotes, participants learned, connected, and applied their understanding towards the unit of study, Realism.

### **Data Analysis**

Qualitative data was used to determine participants' understanding of visual note-taking and if the data helped promote a deeper understanding of particular concepts within the Realistic time period of American Literature. Participants provided a Realism Sketchnote based on a Realism rubric, completed a Realism assessment, and participated in an interview. Open coding was used to develop initial general codes, and then I moved to more focused axial codes and general themes, this allowed me to narrow my open-

coding and identify commonalities. The following is a discussion of each participant, as well the findings of the three parts of this study's data collection.

	Code	Code Description	Example
1	No knowledge	Participants had no understanding of visual note-taking,	“Absolutely nothing.”
2	Somewhat	Participants had either completing visual note-taking one or two times, but did not go in-depth with the method.	“I had done it some my sophomore and freshman year but it wasn't like as in depth as we do today. Like now, my junior year.”
3	Heard Before	Participants had heard from peers about visual note-taking.	“I had heard of them from older students because of your class, but I've not done on one before.”
4	Positive	Participants had a positive perception about visual note-taking within the classroom.	“I think the benefits of sketch noting in your class has greatly like positively changed my outlook on note taking and how I should study.”
5	Help Prepare	Participants noted how visual-note taking helped prepare them for content in the classroom.	“100% Yes, there is a very big difference in my test grades from when I was doing a regular review versus when I did my visual sketchnoting and I, I recommend them to any student who is struggling because I was prepared.”
6	Recall and Remember	Visual note-taking allowed participants to recall and remember information within the classroom.	“It helps me memorize material better than just looking at definitions. Like I can draw mountain images and remember the pictures.”

7	Review	Visual note-taking allowed participants to review concepts within the classroom.	“Everything on the rubric is was everything that we learned over the unit. And what we had to have on the sketch note, so by using the rubric, you had everything in the unit, you needed to review with.”
8	Options	Visual note-taking was another method of note-taking within the classroom and allowed an alternative note option to participants.	“And it's a better source of notes like it, because you can visually and like, we had to learn the five senses. So I drew all the five sentences that helped me memorize really well.”
9	Connection	Participants were able to connect personally with their notes.	“It makes it a lot easier to remember and like retain the information we're learning simple things like a theme maybe because you can just write down like a picture that you had in your own head about it. And that's easier to remember than a long description, definition.”
10	Guide	Participants used the rubric as a guide to complete their sketchnote.	“It helped me complete the sketchnote more thoroughly and like guided me. Or else it would have just found like a bunch of different pictures and words everywhere.”
11	Structure	Participants used the rubric to structure their sketchnote.	“Without it I would probably draw a lot of random pictures that don't really have anything to do



		with the material which would just waste time.”
12 Study Guide	Participants used the rubric as a study guide for the assessment.	“Basically was a study guide and basically gave you the outline of what you should know and what you should be prepared for on the test.”
13 Make good grades following rubric	Participants used the rubric and made a good grade on their sketchnote.	“Well, it gives me everything that is going to be graded so if I do everything on the rubric, then I should get a perfect score.”
14 Check-list	Participants used the rubric as a check-list to complete their sketchnote.	“The rubric basically laid out every single detail that we needed on the sketch note and then you would have to choose which way you wanted to put that thing or that topic on the sketch net, which helped me a lot because it's like a checklist is basically giving you the outline of your sketch now and you just have to fill it in yourself.”
15 Help Visualize	The sketchnote allowed the participants to help visual answers and concepts on the assessment.	“It helps me visualize the like questions on the test. I can remember images and little sayings that I put on my sketch.”
16 Provided Examples	The sketchnote helped provide examples on the assessment.	“...everything from this sketchnote was on the test, and I had to put like evidence in quotes from stories we had read on the sketchnote, which helps with examples on the tests”

17	Focus	The sketchnote helped focus the participants towards what the assessment was going to be on.	“Well, it makes me kind of draw and see what's going to be on the test and forces me to recall old information.”
18	Ability to understand	The sketchnote allowed the participants a deeper ability to understand concepts on the assessment.	“...just having easier thing to remember.”
19	Not Failed	The sketchnote helped the participants not fail the assessment.	“I've been pretty good on tests this year. I've got good grades haven't failed any this year. So I feel like it's helped.”
20	Helped Moving Forward	After the study, participants were going to use visual note-taking moving forward.	“I like it, and I'm going to use it throughout my school career to help me better my ability on tests.”
21	Much Better than writing regular notes	After the study, participants stated that visual note-taking was better than regular class notes.	“I like them a lot better than regular notes and like regular reviews to turn in because it's if you get to put your own like spin on a note or like example from a taxi you need to know.”
22	Using outside Literature Class	Participants were going to use visual note-taking as a tool outside the researchers classroom.	“I will definitely be using it a lot more and not even in my lit class but science classing classes as well, probably because with the visual learning and all the equations and all that stuff, I think that it would be a lot easier.”

23	Time Constraint	Completion of the sketchnote had time constraints than what usual note-taking methods do.	“The three days that it took to do our realism sketchnote.”
24	Multiple Day	Sketchnote completion took multiple days to complete.	“No, it's taken me a couple days, probably five hours total doing it.”
25	More Time than Notes	Sketchnotes took more time to complete than other class notes.	“The amount of time it takes to write your sketch verses other notes.”
26	Long Process	Sketchnote completion was a longer process than other note-taking methods.	“Drawback would be that it takes a lot more time than just writing down a sentence.”
27	More Focus	Sketchnotes needed more focus than other note-taking methods.	“Sometimes it can be very lengthy process until you have all the time to focus. So it's kind of it's annoying, but it really helps. So it's worth it.”

Categories & Codes	Frequency
Pre-Knowledge of Visual Note-taking	
No Knowledge	3
Somewhat	1
Heard Before	2
Perceptions about Sketchnoting in the Classroom	
Positive	4
Help Prepare	3
Recall and Remember	4
Review	3
Options	2
Connection	1
Perceptions of the usefulness of the Rubric	
Guide	4
Structure	2
Study Guide	3
Make good grades following rubric	4
Check-List	3

Perceptions of Sketchnote and the aid towards test-taking	
Help Visualize	6
Provided Examples	2
Focus	3
Ability to understand	4
Not Failed	2
Perceptions of Sketchnoting after completing the Study	
Helped Moving Forward	3
Much better than writing regular notes	3
Using outside Literature class	3
Perceptions of the drawbacks of Sketchnoting	
Time Constraint	5
Multiple Days	3
More Time than notes	2
Long Process	3
More Focus	1

## Participants

This study included six 11th grade student participants that were selected based on their identifications within the school: Gifted and Talented, On-level, Struggling, and Student with a 504 (defined in the previous chapter). All student participants attended Riverdale High School (pseudonym given to the school by the researcher) since ninth grade. To protect participants' privacy, participants self-selected their pseudonym prior to engaging in the study.

### *Archie*

Archie, being the one gifted student, excelled in school. He was taking multiple Advance Placement (AP) classes and was in Honors English during his Sophomore year. He switched to on-level English to focus on playing basketball and other AP classes. He found himself too stressed-out during Sophomore year trying to juggle three AP and two Honors courses. He was a White, 17-year-old male who always took down diligent notes during class and had a grade point average (GPA) of 4.0.

***Betty***

Betty was an on-level 17-year-old White female student. She had a GPA of 3.2, and she passed all but one class in her high school career. She was one of four females in the classroom. Betty used her iPad while taking notes in the classroom, and she would type them onto her Office 365 account and then print them out to keep in her binder.

***Jughead***

Jughead was an on-level 17-year-old White male. He never failed a class and had a GPA of 2.9. He played multiple Varsity sports and was known as one of the “popular” kids in the classroom. He loved to be goofy and hated illustrating. He once stated that school was, “just one stop in life” and tried to focus on it like his job. Jughead hardly took notes during class, spending much of his time looking down at his phone.

***Veronica***

Veronica was one of four females in the classroom. She was a White 17-year-old who was labeled as on-level. She loved to doodle and design images on her notes while also creating her own color-coding system that went along with what she was learning. Veronica had a 3.4 GPA.

***Brick***

Brick was labeled as a “struggling” high school student. He failed multiple classes, but this was mostly due to his attendance record and multiple tardies that led him into In School Suspension (ISS). He was an African American 17-year-old student, one of three in the classroom, with a GPA of 2.5. Due to his “struggling” label, I provided Brick with pre-filled notes whenever I presented notes to the class.

***Wake***

Wake was an 18-year-old White male student who was on an individual learning plan, also known as a 504 plan. This plan was put in place, because he struggled with creating connections and understanding material. He rarely took notes in class, leaving the majority of his provided guided notes blank. He had failed at least one class every semester, resulting in a 1.8 GPA. In his last semester of Junior year, he failed Literature along with History.

### **Rubric Analysis**

I provided each participant a Realism Sketchnote rubric before the start of their visual note-taking assignment (Appendix B). The purpose was to help guide participants to organize their notes along with creating Realism text connections. Using that rubric, participants had an aid in studying for what could be presented on their assessment. They also could have used this rubric to help guide personal connections to their notes, such as images towards their Realism curriculum.

The rubric had seven categories: American Literature Time Period, Elements of Realism in Literature, Main Elements of Realism, Historical References, Unit Vocabulary, Unit Stories, and Elements of a Sketchnote. Within those seven categories, there were guiding prompts and questions to ensure that students were creating a deeper understanding of the time period, such as “Why/How did Realism start” and “Include the four main elements of Realism”. I expected these categories to be presented in some visual illustration or textual way. The categories were broken down into points towards their sketchnote grade with the highest category being “The Main Elements of Realism” that was worth 15 points. Overall, the sketchnote was worth 50 points.

### ***Participant's Actions***

Participants, along with classmates, had three days in class to create their Sketchnotes. At the end of the three days, every student evaluated their work based on the seven-category rubric, and they self-assessed, looking for all rubric elements hopefully presented on their sketchnote. They then had the option to turn it in as is or revise their sketchnote after the self-assessment. None of the participants utilized the revision opportunity. They turned in their sketchnotes as is, and they graded themselves 50 out of 50 points.

Betty and Veronica wrote on their self-assessment “*Perfect*”, while Archie just provided a written out “*100%!*”. Wake mentioned in his interview that he did not want to take more time outside of school to work on revisions when he could “*just turn it in and hope for the best*”.

### ***Researcher’s Observations***

Being the researcher, I did not force or persuade participants to revise and reevaluate their sketchnotes. Based solely on the self-assessment, it did not seem as though participants wanted to work on revising their sketchnotes or take more time on this assignment. They seemed to use the rubric as a guide in the first place, so there was no clear lack of understanding of Realism. After grading the sketchnotes, it became clear why the majority of the participants did not revise since three out of the six participants received full credit on their sketchnotes for including all seven criteria. Jughead would have scored a 50/50, but he missed elements of a sketchnote, not Realism criteria. Betty scored a 48/50, only missing a minor detail of not providing an example of Naturalism. Wake, on the other hand, scored a 33/50, missing majority of the Realism elements that

needed to be presented on his sketchnote. A deeper analysis of the Realism sketchnotes are detailed below.

### **Realism Sketchnote**

As stated above in Chapter 3, and within the Rubric Analysis section, the Realism Sketchnote was analyzed based on the seven categories of the rubric. Using the Rubric, and the Rubric Explanation/Analysis (Figure 1), I provided a numerical grade for each participant. The sketchnote was a total of 50 points. Time Period worth two, Elements of Realism in Literature worth two, Elements of Realism worth 15, Historical References worth five, Unit Vocabulary worth four, Unit stories worth 12, and Elements of a Sketchnote worth 10 (Figure 5).

Participants and students had access to printer paper and colored pencils/markers during the three class periods. They were able to trace visual images from their phones or computers if they were not comfortable free handing. During this time, they could ask questions, along with having their peers help them. Each class period was about 45-50 minutes, totaling around 150 minutes in class working and revising the sketchnote. Students and participants also had the weekend and weeknights to work on their visual notes.

When the sketchnotes were submitted by all students and participants, I used the same rubric for everyone. For my participants only, I created a photocopy of their sketchnotes where I circled the images or ideas that appeared on their sketchnote that matched up with the rubric (Figure 4). By means of the Rubric Explanation/Analysis



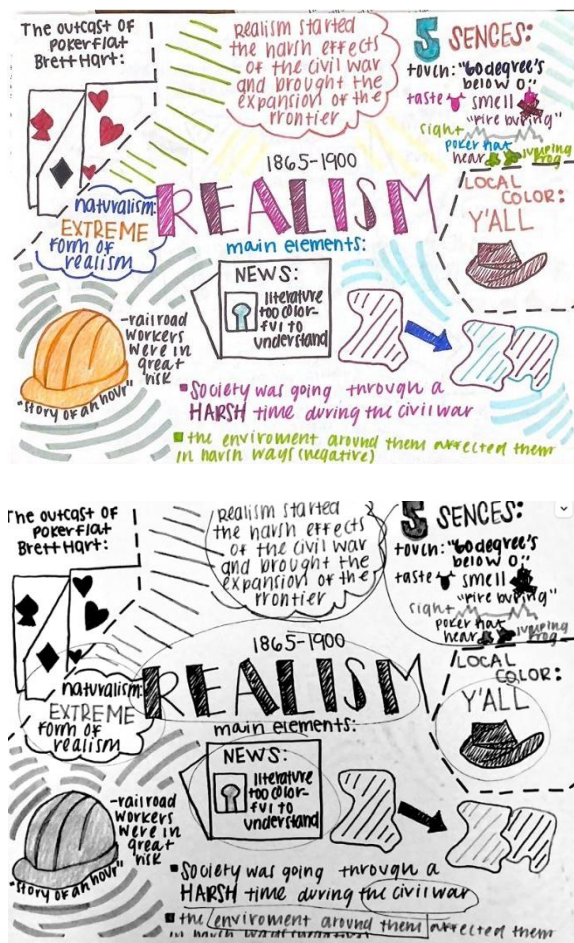


Figure 4: Realism Sketchnote Example

chart, I had listed images that might be shown on my participant's sketchnotes. Using that chart, I scanned over each sketchnote. If I did not find the images or ideas listed, I analyzed if the participants used different images and looked for those. Then, if they were present or not, I went and circled the rating on their rubrics (Figure 5).

Criteria	Ratings				Pts
American Literature Time Period and dates creatively displayed What time period are we in? What years did this time period take place?	2 pts Full Marks	1 pts Missing one out of the two	0 pts No Marks		2 pts
Elements of Realism in Literature -Make sure to include how Americans wanted to read clear language that they could connect to and move away from the Romantic philosophical language (photo would be good here)	2 pts Clear language was exhibited on the sketchnote Think of a image that shows clear, connectable language in our lives	1 pts Did not showcase well the clear language that Americans want to connect to	0 pts No Marks		2 pts
Main Elements of Realism -Include the four main elements of Realism: 1) Local color/everyday language 2) real everyday characters, 3) everyday events 4) intense detail (the five senses-great place to add photos)	15 pts All four elements are presented on the sketchnote via visual or example	11 pts 3/4 presented	7 pts 2/4 Presented	3 pts 1/4 Presented	0 pts No Marks
Includes historical references of moving from Romanticism to Realism -Why/how did Realism start? -What was American's focus at this time? -Think about what was happening in America—what society was going through to make them leave Romanticism?	5 pts Showcased how Realism started. Included moving from Romanticism to Realism	3 pts Did not include why people moved away from Romanticism	1 pts Does not explain the focus	0 pts No Marks	5 pts
Unit Vocab: What is Naturalism? -Define Naturalism -Include an example from a Naturalistic text (the ones we read)	4 pts Definition and example presented	2 pts Missing either the example or the definition	0 pts No Marks		4 pts
Unit Stories Include an image, characters, plot lines, structural elements, or anything else from these stories you remember. You only need ONE element per story "Poker Flat" "Story of an Hour" "Jumping Frog" "To Build a Fire"	12 pts All four stories presented and one element is included per story	9 pts Missing one of the stories	6 pts Missing two of the stories	3 pts Only one story presented	0 pts No Marks
Elements of a Sketchnote Images, text, and structure is all present. Sketchnote is full color. MAKE SURE YOUR SKETCHNOTE ISN'T FULL OF TEXT	10 pts Full Marks	8 pts Effort Missing one of the elements and not full effort put forth	4 pts Effort Missing two of the elements and only half effort put forth	0 pts No Marks	10 pts
Total Points: 50					

50

<https://myccsd.instructure.com/courses/189140/assignments/6599112>

2/2

Figure 5: Example Rubric

### Participant's Actions

Each participant turned in a Realism sketchnote. One of the easiest elements to evaluate was the American Literature time period and date. Being the largest element on each sketchnote and the first criteria on the rubric, every participant included these two

components somewhere on their sketchnote. Majority of the participants decided to center this element as a title, while Wake and Jughead used the borders of their sketchnotes.

Wake was the only participant to utilize an arrow between the dates showcasing a sketchnote element (Figure 6).

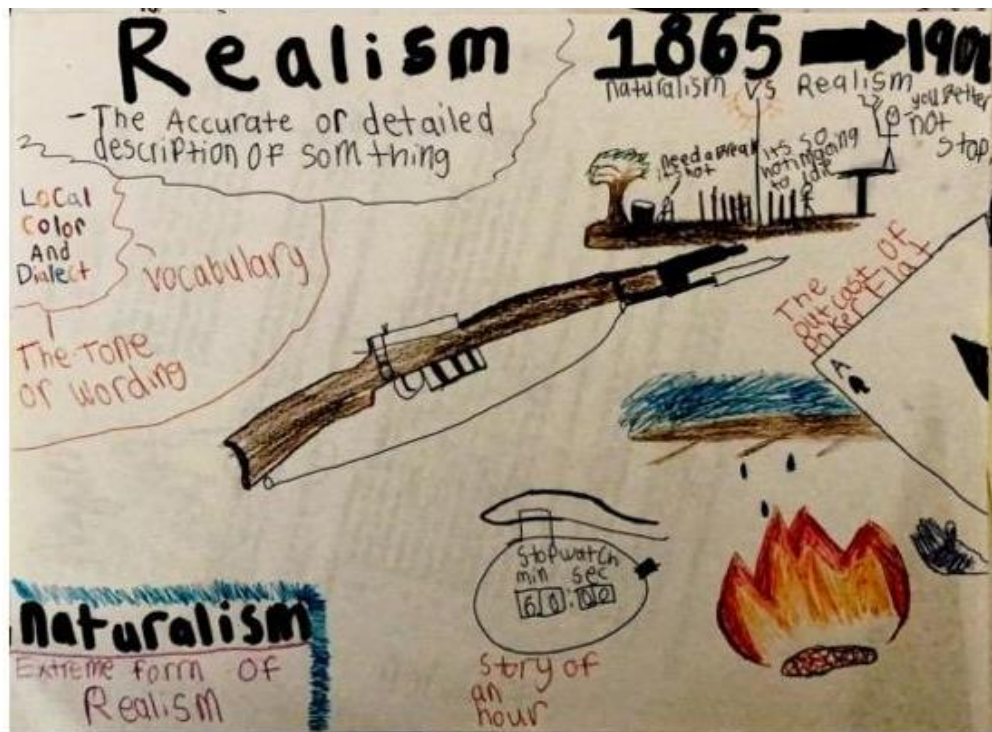


Figure 6: Wake's Sketchnote

Five participants provided very solid examples of Realism in Literature, the second listed criteria on the rubric, Wake was the only participant that struggled with producing solid examples. He failed to detail on his sketchnote how Americans wanted to read clear language and move away from Romanticism. Veronica, on the other hand, through the use of illustration, drew a newspaper representing clear everyday language. A key aspect of sketchnotes is a balance between texts and images, so participants were also allowed to write on their sketchnotes, and Archie detailed through text that “*Americans wanted to read clear language that they could connect to as opposed to the philosophical*

language of Romanticism” (Figure 7).

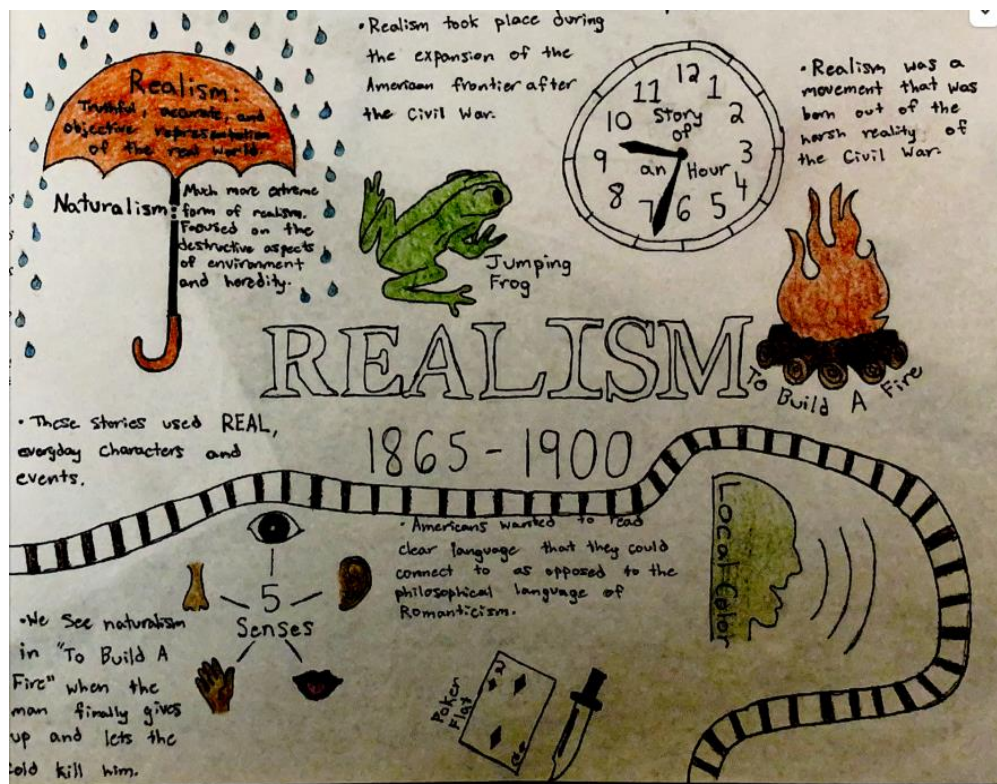


Figure 7: Archie's Sketchnote

Elements of Realism were weighed most on this rubric, as there were four key details that needed to be present. Participants needed to include local color, everyday characters/events, and intense detail. Some participants added these aspects in a very personal, creative way, but others only creatively portrayed one or two aspects. For instance, Betty presented a personal connection with using “y’all” as local color - y’all being an example of local color for the south. She also created a connection to the Civil War by illustrating a rifle that is similar to one that would be used during that time period (Figure 8). While Jughead, for local color, creatively used dialogue bubbles with “y’all” and “Feller” inside. Using “Feller” as an example of local color showed his connection towards a Realism text, “The Outcasts of Poker Flat”, we read in class.



Figure 8: Betty's Sketchnote

Brick went beyond the addition of personal connection regarding this criterion. He represented Realism through illustrating multiple stick-figure characters doing everyday jobs. He illustrated a woman cooking over a fireplace, a man chopping wood and mining, a lady harvesting, and two characters fishing in a stream. His sketchnote presented more images than the other participants, using these images to represent all aspects of this criteria on the sketchnote and showcasing the everyday characters Realistic authors write about (Figure 9). Archie decided to take a more simplistic approach, as he illustrated a silhouette of a face with speech ripples coming out of his mouth and wrote “*local color*” within the silhouette (as seen in Figure 7).



Figure 9: Brick's Sketchnote

The participants all exemplified how Realistic authors used intense detail in their writing, as not one participant missed all five senses on their Sketchnotes. Being able to read a Realistic text, readers should have a sense of what the characters are seeing, tasting, hearing, smelling, and touching. Using illustrations of the five senses (nose, hand, lips, eye, ear), Jughead and Archie incorporated images of these elements to deepen the understanding of the intense detail Realistic texts incorporate. Veronica both illustrated, defined, and provided examples of the five senses (Figure 10). On the other hand, even though Wake did not have all five senses presented on his sketchnote, he did include an illustration of a hand.

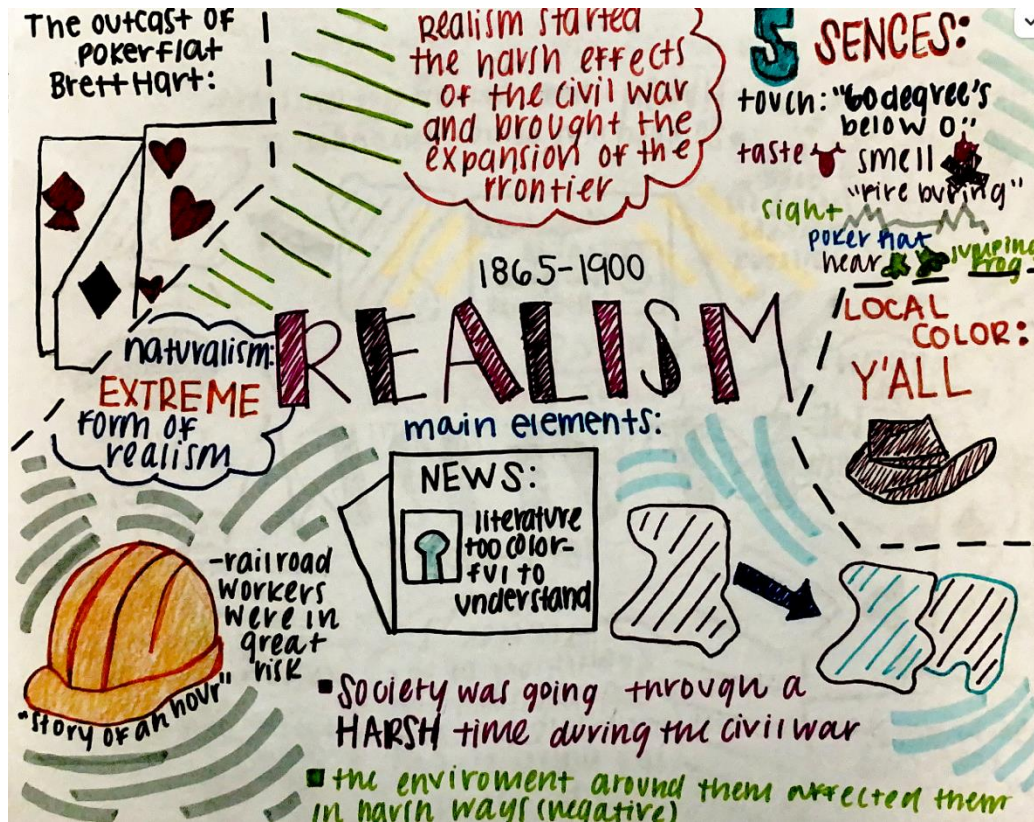


Figure 10: Veronica's Sketchnote

Participants also represented key details in each of the Realistic unit short stories. All six participants included the title of each story and an image that corresponded with that story. Four participants illustrated a poker card for “The Outcasts of Poker Flat”, while Brick provided a quote, and Betty illustrated a mountain side. All six participants also illustrated a fire to showcase “To Build a Fire”.

The toughest elements evaluated were the unit vocabulary and historical references. Some participants defined Realism and Naturalism, but they left out key examples demonstrating an understanding of these writing styles. An interesting image that both Jughead and Archie used was an image of an umbrella with the word “Realism” inside the umbrella and “Naturalism” under the umbrella. Beside these two words, they wrote out the definitions and examples, such as “destructive aspects of the environment

and heredity”. The images of the umbrellas creatively showcased that Naturalism is a branch under Realism, while the text included their examples (Figure 11; as seen in Figure 7).

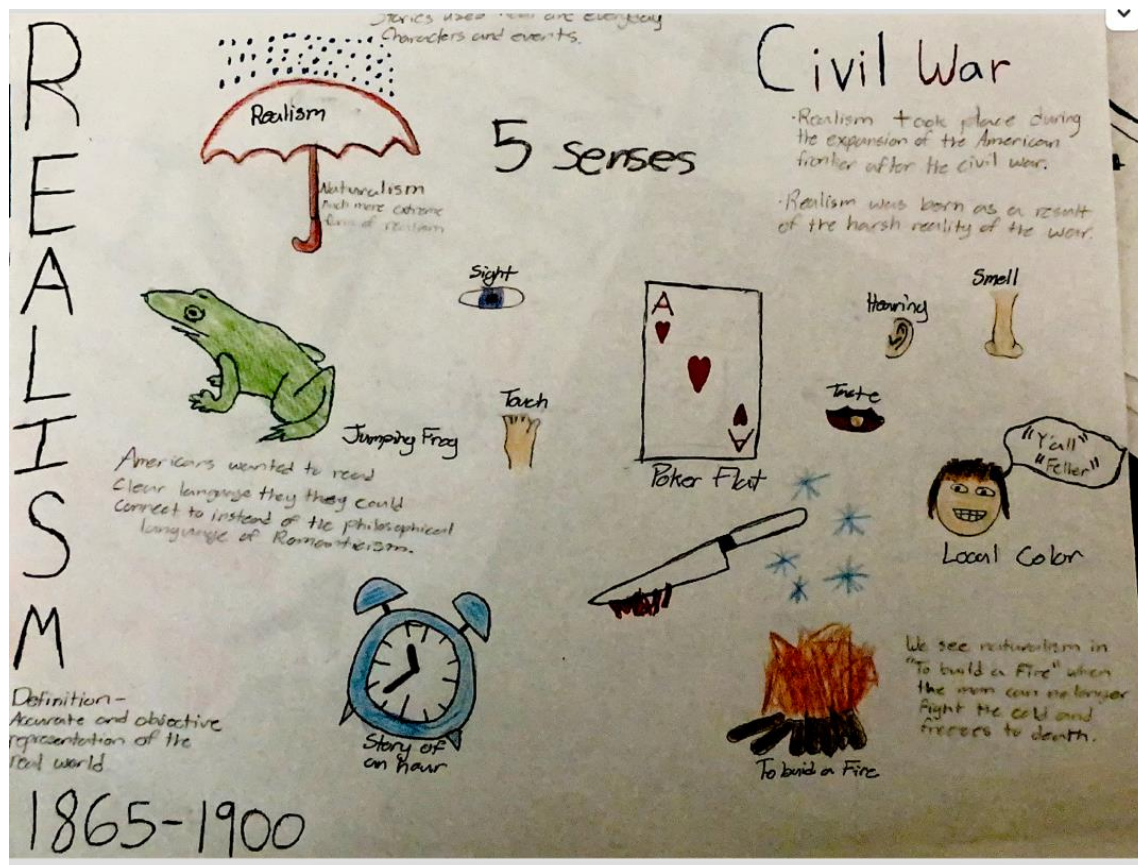


Figure 11: Jughead's Sketchnote

Archie also incorporated more explanations from Realism and the texts taught in the classroom than the other participants. He detailed, “We see Naturalism in ‘To Build A Fire’ when the man finally gives up and lets the cold kill him”. Veronica took a different approach by using text detailing how “Realism started with the harsh effects of the civil war and brought the expansion of the frontier”. Then, using the explanation of “the environment around them affected them in harsh ways (negative)”, she demonstrated and provided an example of Naturalism. Betty defined the unit vocabulary, but she missed



including an example from a Naturalistic text that we read in class. Regarding historical references, Brick surpassed the other participants by juxtaposing the phrase “The array of breathtaking colors dancing over the horizon” to show Romanticism, while “The sunset looks good” demonstrates Realism. Accompanying a detailed illustration of a sun juxtaposed to a simple illustrated sun. Wake’s sketchnote did not present historical references.

### ***Researcher’s Observations***

Through the analysis of all six sketchnotes, it was clear to me that five out of the six truly understood elements of Realism. Wake was the only participant that struggled with including all criteria asked for on the rubric. This could have been because of his learning struggles or failing to understand the concepts that contribute Realism. Based solely on the sketchnote and the sketchnote rubric, determining understanding is limited since these sketchnotes are an example of recreating notes through visuals and creating connections to those notes.

The structure of a sketchnote was presented extremally well, especially by Brick who created a theme for his entire paper. He used a landscape as a background image to incorporate all criteria from the rubric (as seen in Figure 9). This was the personal connection piece I was looking for within this study. He personalized his note-taking experiences through connecting the entirety of Realism that was taught to him. Archie also used train tracks throughout the middle of his sketchnote as a structure tool which connected to Realism and a common setting presented in the stories read. Both Betty and Veronica played with fonts and bright colors to illuminate Realism concepts (as seen in Figure 8 & Figure 10).

Small details, such as the doodling of the five senses and symbols from the unit stories, really stood out across all six sketchnotes. A commonality was a rifle from the Civil War that represented the movement towards Realism from Romanticism. The use of “y’all” showcased participants using where they live as an example for local color. “Y’all” was not read during this unit, yet three of the participants wrote it on their sketchnote. Through these small connections, it demonstrates that participants were using their lives as connections towards their notes, one of the purposes of using sketchnotes as a note-taking tool.

### **Realism Assessment**

Each participant, along with their classmates, took an end of the unit Realism summative assessment (Appendix C). This was completed on a Thursday within the classroom time period (around 45-50 minutes). Using a point-based grading scale, the test was worth 50-points, two points for each of the 25 questions. The first five questions were matching while the rest were multiple choice.

All participants and students completed the test on a ZipGrade, the updated version of scantron. Their ZipGrades were scanned on an app through my phone which already had the loaded assessment answers. When scanned, students received their test score out of 50 on the top of the ZipGrade answer sheet. Thus, if a student received a 38 out of 50, that would translate to 76%. No participant or student in the course needed more time to complete the test. All students in this class finished it within 43 minutes.

### ***Participant’s Actions***

Each participant was able to showcase their understanding of Realism through this assessment. Three of the six participants (Jughead, Archie, Veronica) scored a

perfect eight out of eight on the questions regarding this study. While two participants (Brick and Betty) only missed one question, the other participant missed two (Wake).

Betty, one of the participants that only missed one multiple choice question, she was unable to answer “Naturalism, a branch of Realism \_\_\_\_\_” (Appendix I). On the other hand, Brick also only struggled with one out of the eight questions (Appendix I). For number 25, the question was “In the following passage, what literary technique does Crane most utilize to develop a sense of place?”. He answered, “Crane paints a vivid picture of the setting so the reader can visualize how run down the area is”; yet, the answer was “Crane draws upon the sounds of the area so the reader can infer that the area is very poor and run down”. The quote on the assessment did not include imagery but sounds as examples.

Wake was the only participant who missed two questions. These questions asked, “How did Realism start” and “True or False: A typical character in a Realist piece of work would be highly educated and from the upper class”. The other six questions were correct (Appendix I).

### ***Researcher’s Observations***

Overall, participants scored extremely high on their Realism assessment. Percentage wise, the lowest score was Wakes at 75% (6/8). Based on these assessment scores, the participants all understood the Time Period of Realism. These eight assessment questions should have been reflected on their sketchnotes. The next section will provide details on how the participant’s sketchnotes aided in their assessment scores.

### **Sketchnote and Assessment Cross-Comparison Document Analysis**

Eight of the 25 questions located on the Realism Assessment were supposed to be implemented on the participant's sketchnotes (as seen in Figure 2). Figure 2 described how these questions were supposed to be executed. Assessments were graded using two numerical grades, the number of questions correct out of 50 and then the converted percentage of correct answers. The blue number is the number of questions correct, while the pink number is that percentage. Thus, 44 questions correct is 88% (Figure 12).

Name [REDACTED]

Period 2/7/22

ZIPGRADE.COM

Realism Test (5120)

1 A B C D E 14 A B C D E

2 A B C D E 15 A B C D E

3 A B C D E 16 A B C D E

4 A B C D E 17 A B C D E

5 A B C D E 18 A B C D E

6 A B C D E 19 A B C D E

7 A B C D E 20 A B C D E

8 A B C D E 21 A B C D E

9 A B C D E 22 A B C D E

10 A B C D E 23 A B C D E

11 A B C D E 24 A B C D E

12 A B C D E 25 A B C D E

13 A B C D E

Key ● B

Figure 12: Zipgrade Assessment Answers Example

After each assessment was graded, I circled the questions that the participants answered incorrectly. From there, I bracketed and underlined the eight questions that should have been located on the sketchnote (as seen in Figure 12). Doing this, it made it

easier for me to quickly identify the eight questions that parallel the sketchnote. Using the cross-comparison chart (as seen in Figure 2), I started to make notes on their grades from the sketchnote compared to the answers they provided on their assessment questions. I detailed the elements presented on each participant's sketchnote that corresponded with the assessment question. The purpose of this cross-comparison was to determine if the participant's sketchnote helped develop that deeper understanding of the Realism unit and if using visual images produced a higher test score.

### *Participant's Actions*

Three participants received a perfect score on their sketchnotes, which translated to a perfect score on their assessment (Figure 13, 14, & 15). Jughead, Veronica, and Archie all presented the key elements of Realism through connecting their Realism notes to their own personal understanding through thoughtful images, creative doodles, and pulling in personal examples from their lives.

### Jughead's Cross-Comparison Assessment

Assessment Question	Jughead's Sketchnote
6. (#18) How did Realism start?	Included a summary of how it started writing, "clear language they could connect to instead of philosophical language"
7. (#19) Naturalism, a branch of Realism _____	Image of an umbrella with the word "Realism" in the umbrella and "Naturalism" under the umbrella to showcase that Naturalism is a branch under Realism.  Image of a fire with snow falling on top that exemplifies an example from "To Build a Fire".
8. (#20) Which of the following is not an element of Realism?	Used images of the five senses. Had a summary of the Civil War stating, "took place during the expansion of the American frontier after the Civil War".
9. (#21) Which of the follow quotes is an example of Realism?	Included local color words along with two examples
10. (#22) True or False: A typical character in a Realist piece of work would be highly educated and from the upper class.	Included a poker card from "The Outcasts of Poker Flat" to show the gambler and every day characters
11. (#23) Local color is _____.	dialogue bubbles with "y'all" and "Feller"
12. (#24) The following quote is an example of what element of Realism?  "Ah, come off! I got dis can fer dat ol' woman an' it 'ud be dirt the swipe it. See?" cried Jimmie."	"y'all" and "feller" written out
13. (#25) In the following passage, what literary technique does Crane <i>most</i> utilize to develop a sense of place?  <i>Above the muffled roar of conversation, the dismal wailings of babies at night, the thumping of feet in unseen corridors and rooms, mingled with the sound of varied hoarse shoutings in the street and the rattling of wheels over cobbles.</i>	Wrote out, "stories used real and everyday characters and events" along with an image of a bloody knife

Figure 13: Jughead's Cross-Comparison

### Archie's Cross-Comparison Assessment

Assessment Question	Archie's Sketchnote
6. (#18) How did Realism start?	Wrote, "Realism was a movement that was born out of the harsh reality of the civil war". Also, included "expansion of the American frontier".
7. (#19) Naturalism, a branch of Realism _____	Under the illustration of an umbrella, he defined Naturalism and provided an example by writing, "the man finally gives up and lets the cold kill him"
8. (#20) Which of the following is an not an element of Realism?	Has illustrations of all five senses, includes an illustration of local color, railroad tracks are around the middle of his sketchnote, and an illustration of a poker card showing everyday events
9. (#21) Which of the follow quotes is an example of Realism?	Wrote out, "Americans wanted to read clear language that they could connect to"
10. (#22) True or False: A typical character in a Realist piece of work would be highly educated and from the upper class.	Wrote, "these stories used REAL everyday characters and events"
11. (#23) Local color is _____.	Has an image of a silhouette speaking with "local color" in the silhouette
12. (#24) The following quote is an example of what element of Realism? "Ah, come off! I got dis can fer <u>dat ol'</u> woman an' it ' <u>ud</u> be dirt the swipe it. See?" cried Jimmie."	Wrote about clear language on the sketchnote
13. (#25) In the following passage, what literary technique does Crane <i>most</i> utilize to develop a sense of place?  <i>Above the muffled roar of conversation, the dismal wailings of babies at night, the thumping of feet in unseen corridors and rooms, mingled with the sound of varied hoarse <u>shoutings</u> in the street and the rattling of wheels over cobbles.</i>	Illustrated all five senses on the sketchnote

Figure 14: Archie's Cross-Comparison

Assessment Question	Veronica's Sketchnote
6. (#18) How did Realism start?	Wrote, "Realism started with the harsh effects of the civil war and brought the expansion of the frontier". She also detailed the "harsh time during the civil war". Wrote on the newspaper that literature was being "too colorful to understand"
7. (#19) Naturalism, a branch of Realism	Provides the definition of Naturalism and writes, "the environment around them affected them in harsh ways (negative)".
8. (#20) Which of the following is not an element of Realism?	Writes local color and "y'all" as an example. Includes a hardhat which shows everyday characters. Write about railroad workers which shows everyday events and jobs, also has the five sense illustrated, defined, and provided examples.
9. (#21) Which of the follow quotes is an example of Realism?	Uses "y'all" on her sketchnote and showcases the detailed descriptions with the 5 senses.
10. (#22) True or False: A typical character in a Realist piece of work would be highly educated and from the upper class.	Drew poker cards, hardhat and a cowboy hat. Writes about railroad workers and soldiers.
11. (#23) Local color is	Connected local color to "y'all" on her sketchnote
12. (#24) The following quote is an example of what element of Realism?  "Ah, come off! I got dis can fer <del>dat ol'</del> woman an' it 'ud be dirt the swipe it. See?" cried Jimmie."	Connected local color to "y'all" on her sketchnote
13. (#25) In the following passage, what literary technique does Crane most utilize to develop a sense of place?  <i>Above the muffled roar of conversation, the dismal wailings of babies at night, the thumping of feet in unseen corridors and rooms, mingled with the sound of varied hoarse <del>shoutings</del> shouting in the street and the rattling of wheels over cobbles.</i>	The use of the five senses on her sketchnote shows the detailed description of hearing.

Figure 15: Veronica's Cross-Comparison

Brick also received a perfect sketchnote score, yet he missed one question on the assessment. He illustrated intense detail on his sketchnote, so he received credit on the rubric. However, he could have created images to represent the five senses, showcasing how Realistic authors create detail in their writing to develop the characters, sense of place, and everyday events to help answer the Realistic detail question on the assessment (Figure 16).



**Brick's Cross-Comparison Assessment**

Assessment Question	Brick's Sketchnote
6. (#18) How did Realism start?	The word "Romanticism" with an arrow pointing to the word "Realism". He also included an example of how the Romantics would write verses how the Realists wrote.
7. (#19) Naturalism, a branch of Realism _____	Included the phrase "Law of Nature" and drew an example of a little man on a frozen pond with snow falling around him.
8. (#20) Which of the following is an not an element of Realism?	"Drunkard" and "yonder", multiple images of stick figures doing everyday work, in everyday clothes. Uses an image of people mining, and chopping wood.
9. (#21) Which of the follow quotes is an example of Realism?	Use a local color quote on his sketchnote, "there was a feller here" and "to this yer young man"
10. (#22) True or False: A typical character in a Realist piece of work would be highly educated and from the upper class.	All characters illustrated on the sketchnote were all middle to low class characters doing middle to low class jobs.
11. (#23) Local color is _____	Wrote out, "yer", "feller", "drunkard", "yonder"
12. (#24) The following quote is an example of what element of Realism?  "Ah, come off! I got dis can fer dat ol' woman an' it 'ud be dirt the swipe it. See?" cried Jimmie."	Wrote out, "yer", "feller", "drunkard", "yonder"
13. (#25) In the following passage, what literary technique does Crane <i>most</i> utilize to develop a sense of place?  <i>Above the muffled roar of conversation, the dismal wailings of babies at night, the thumping of feet in unseen corridors and rooms, mingled with the sound of varied hoarse shoutings in the street and the rattling of wheels over cobbles.</i>	He did not include images of the five senses, so he missed how the sounds developed the sense of place

Figure 16: Brick's Cross-Comparison

Even the smallest details on the participants' sketchnotes affected their assessment grade. Betty defined Naturalism on her sketchnote, but she forgot to provide an example from a text we read. "*To Build A Fire*" was a short story where nature is shown greater than mankind, eventually killing the protagonist. We used this as an example of a Naturalism text, yet this was the one element Betty forgot. The answer to the test was "focused on portraying forces of nature that are greater than mankind and

controlling our lives”. Betty answered “focused on portraying real life as ordinary people lived it and live happily” (Figure 17).

<b>Betty's Cross-Comparison Assessment</b>	
<b>Assessment Question</b>	<b>Betty's Sketchnote</b>
6. (#18) How did Realism start?	Wrote how people wanted a clear understanding and also drew a war poster to illustrate the time period
7. (#19) Naturalism, a branch of Realism _____	Only the definition was provided, not an example. Definition was in a cloud, but it was unclear if that was supposed to be a snow cloud or not. She did draw a stick man thinking, “nature does not fix everything”
8. (#20) Which of the following is an not an element of Realism?	Drew out all 5 senses, included a mining cave with a pick ax, drew a gun, and drew a cross with an arrow to showcase movement away from God
9. (#21) Which of the follow quotes is an example of Realism?	Included “fixin” and “y’all” on her sketchnote. Had local dialect written out on her sketchnote beside those two examples
10. (#22) True or False: A typical character in a Realist piece of work would be highly educated and from the upper class.	Wrote, “real-life character” on her sketchnote
11. (#23) Local color is _____	See #9—“fixen” and “y’all”
12. (#24) The following quote is an example of what element of Realism? “Ah, come off! I got dis can fer <u>dat ol</u> woman an’ it ‘ <u>ud</u> be dirt the swipe it. See?’ cried Jimmie.”	See #9—“fixen” and “y’all”
13. (#25) In the following passage, what literary technique does Crane <i>most</i> utilize to develop a sense of place? <i>Above the muffled roar of conversation, the dismal wailings of babies at night, the thumping of feet in unseen corridors and rooms, mingled with the sound of varied hoarse <u>shoutings</u> in the street and the rattling of wheels over cobbles.</i>	Drew out the five senses and wrote “nature”. Also wrote out the definition of pessimism

Figure 17: Betty's Cross-Comparison

As seen through one of the participants, when elements were missing on the sketchnote, the assessment questions were not answered correctly. Wake’s sketchnote was missing the criteria about why Realism started. He did not include that Americans, during this time period, wanted to read clear language and what their society was going through. There was a clear connection between the missed questions on his assessment to

what was missing on his sketchnote. He did not remember when Realism started or that the characters were everyday characters (Figure 18).

<b>Assessment Question</b>	<b>Wake's Sketchnote</b>
6. (#18) How did Realism start?	Not presented
7. (#19) Naturalism, a branch of Realism _____	The definition of Naturalism was presented along with an image of melting snow on a fire which showed an example from "To Build a Fire"
8. (#20) Which of the following is an not an element of Realism?	Not presented
9. (#21) Which of the follow quotes is an example of Realism?	Dialect and local color was written on his sketchnote as text
10. (#22) True or False: A typical character in a Realist piece of work would be highly educated and from the upper class.	Not presented
11. (#23) Local color is _____.	Only the definition was included, no examples
12. (#24) The following quote is an example of what element of Realism? "Ah, come off! I got dis can fer dat ol' woman an' it 'ud be dirt the swipe it. See?" cried Jimmie."	Definition of local color included
13. (#25) In the following passage, what literary technique does Crane <i>most</i> utilize to develop a sense of place?  <i>Above the muffled roar of conversation, the dismal wailings of babies at night, the thumping of feet in unseen corridors and rooms, mingled with the sound of varied hoarse shoutings in the street and the rattling of wheels over cobbles.</i>	Used an image of everyday characters doing chores under the sun to represent everyday events.

Figure 18: Wake's Cross-Comparison

### ***Researcher's Observations***

Analyzing the cross-comparison data, there was a clear relationship between the elements participants presented on the sketchnotes and their assessment scores. The common theme demonstrated on these charts was, if participants included an illustration or text on their sketchnote representing a Realistic element, they answered the assessment question correctly. If the participant excluded an element on their sketchnote, they answered incorrectly. This is verified with Wake and Betty. Betty forgot to provide an

example of Naturalism on her sketchnote, and, in turn, missed question 19 (Version B) that asked about Naturalism. The other five participants included a Naturalism example on their sketchnotes and received credit for question 19 (Version B). Wake missed question 18 and 22 (Version B) which asked about how Realism started and the type of characters presented in a Realist text. Wake failed to incorporate how Realism started on his sketchnote and also did not provide an indication about Realistic characters. The other 5 participants either drew or explained those two items and received credit for the assessment.

### **Interviews**

After the unit was completed, the participants came during their lunch periods to partake in the interview process. All participants came at different times to protect the integrity of the interviews. I conducted six semi-structured interviews with the participants to gain deeper insight into their experience with visual note-taking. There were 12 interview questions (Appendix D). Using Otter.ai, all interviews were recorded and transcribed. The average interview time was six minutes and 48 seconds, with the longest interview taking seven minutes and 35 seconds. Including the interview questions, each interview averaged 550 words.

### ***Participant's Actions***

Within the interviews, all six participants detailed how the Realism sketchnote aided in providing them help on the assessment. Archie detailed, *“Well, it makes me kind of draw and see what’s going to be on the test and forces me to recall old information. I haven’t failed any tests this year, so I feel like it’s helped.”* Veronica recalled how, *“you would look at a certain text or a quote that you had put onto the thing [sketchnote] and*

*then you go back and read the passage [on the assessment] again and then you see that quote on there [the assessment]. It might give you like a green light to be like that. That might be the right answer.”* Brick detailed how illustrating “*aided me besides just having easier thing to remember.*”

Each of the six participants stated that they preferred sketchnotes as a way to take notes over just “*writing notes down and memorizing.*” Veronica revealed, “*I think the benefits of sketchnoting in your class has greatly positively changed my outlook on note-taking and how I should study and not just taking down notes and not really paying attention to what you're writing.*” Brick, labeled through the school as the “struggling” student, took care to mention, “*Yes, there is a very big difference in my test grades from when I was doing a regular review verse when I did my visual sketchnoting and I, I recommend them to any other student who is struggling.*”

Two of the participants stated that they are using this visual note-taking tool in other classes. Jughead pointed out, “*I like it, and I am going to use it throughout my school career to help me better my ability on test.*” Four out of the six participants acknowledged that they remembered visuals that they presented on their sketchnote during their assessment.

Although sketchnotes aided as a note-taking tool, all six participants detailed the lengthy process their sketchnote took them. Betty even mentioned how it took her three to four days to complete. Brick detailed how “*you have to be really focused, it takes time and effort to complete.*”

### ***Researcher’s Observations***

Using ATLAS.ti and Otter.ai, I interviewed and open-coded all six participant's transcripts. Using Otter.ai, all interviews were transcribed into a Word document that allowed me to upload them into ATLAS.ti. Using those six documents, I identified 27 codes from the interview process (Appendix J). Moving towards axial coding, I noticed several of these open-codes spanned across six concepts: Pre-Knowledge of Visual Note-taking, Perceptions about Sketchnoting in the classroom, Perceptions of the usefulness of the rubric, Perceptions of Sketchnotes and the aid towards test-taking, Perceptions of Sketchnoting after completing the study, and Perceptions of the drawback of sketchnoting. Figure 19 provides a breakdown of each of the case study participants' responses regarding these codes.

	Wake	Betty	Jughead	Brick	Archie	Veronica
<b>Pre-Knowledge of Visual Note-taking</b>	He did not know much because he is not a big notes guy. He just writes what the teacher tells him.	It was brand-new to her.	Knew nothing.	He knew nothing except drawing simple pictures to replace words.	Nothing, it was the first time he completed one.	Some in 9 <sup>th</sup> grade and 10 <sup>th</sup> grade, but not in-depth
<b>Perceptions about Sketchnoting in the classroom</b>	He did not have to write as much and it helps being a visual learning completing them.	Helps prepare for the test and it is a better source of notes because you can visually learn. It helped her memorize information.	He heard about sketchnotes from other peers, but never done one before.	Helped in remembering and retaining information. Gave an example of drawing a theme of a story to remember the theme. Mentioned it was easier to remember an image than a long description.	Forced him to go back and look at his notes. If he forgot about a text read in class, he would have to go back and review to put it on his sketchnote, which he would not normally do.	Felt a positive change on how to study and take notes. Makes her pay attention to notes more than just writing down information.
<b>Perceptions of the usefulness of the rubric</b>	He reads the rubric and said if he goes by it, he knows he will get a good grade.	Mentioned that she had everything she needed to prepare for the sketchnote on the rubric. She used it as a study guide.	He used it as a guide, and he would have just found random pictures and would not have a good guide on what to complete or put on his sketchnote.	Used it as a guideline because a sketchnote is a very broad assignment, and the rubric gives it structure.	It provided everything that was going to be graded. So, he stated if he did everything on the rubric, he would get a perfect score.	Rubric was used as a check-list. Helped a lot in understanding the outline of the sketch and how to fill it in.
<b>Perception of Sketchnote and the aid towards test-taking</b>	Helped him visualize certain things.	Used the images of the five senses she drew to help her remember that answer on the test.	Questions on the test jogged him memory to what he drew on his sketchnote. He remembered images he had on his sketchnote to aid in the answers.	He is not sure how it has aided him besides just having easier things to remember.	He has not failed a test this year using sketchnotes which is not something he has done before. The sketchnotes have helped him go back and recall information.	Was used as a study guide. While taking the test she would remember quotes, images, and certain texts that she provided on her sketchnote. Her grades were stronger because of the sketchnote
<b>Perceptions of Sketchnoting after completing the study</b>	Mentioned he was a visual learning, so sketchnotes helped him.	She said taking visual notes are awesome and so much better than just hand-written notes. She can visualize and remember things should would not have. She mentioned how it was really helpful and awesome.	His note-taking has got better because he can use his own images instead of a bunch of words and his test scores have gone up. He uses sketchnoting already in other classes.	He likes them a lot better than regular notes and regular reviews because he gets to put his own spin on his notes. He wanted to take notes because it was more fun and easier.	He stated it has helped him a lot.	She is going to use this strategy outside her literature class, she thinks it will really help in math towards equations.
<b>Perceptions of the drawbacks of Sketchnoting</b>	Takes time and effort and one has to be really focused to sit and complete it. He does not like sitting down for long periods of time to complete something as simple as notes.	The lengthy process can be annoying, but it still helps. It took her three or four days to complete just one page of notes.	Consumes time, but everything else is positive.	Drawing takes more time than writing down a sentence.	Take a lot of time, it took him probably five hours to complete.	The amount of time spent create the sketchnote. Took three days to complete.

*Figure 21: Thematic Codes from Interviews*

*Figure 22: Thematic Codes rom Interviews*



## Discussion of Results

The purpose of the qualitative study was to determine if there was a connection between sketchnoting as a note-taking method and the effect it had on the students' understanding of particular concepts within the American Literature curriculum. Through a case-study design, the single social phenomenon being studied was sketchnoting. Six participants were selected to partake in this study. Through the rubric analysis, sketchnote, assessment, cross-comparison, and interviews, the research question was answered.

I used qualitative data to determine the impact on participants' understanding when using sketchnoting as a note-taking tool in my American Literature classroom. Participants provided insight in their sketchnotes, assessments, and feedback with their interviews. Through the use of the coding process in ATLAS.ti, I was able to develop general codes then began to recognize more focused codes through general perceptions of sketchnoting.

My analysis of the data led to the conclusion that sketchnoting, as a note-taking strategy, benefits students in various ways, especially when preparing for a unit assessment. During the study, participants were deepening their understanding of Realism through the creation of a sketchnote. Wake even mentioned, *"You don't have to write as much and it's for somebody like me, it helps if you're a visual learner, and you like to see stuff visually"*. He went on to explain that *"talking about Western days, and you were talking about how they used to have transportation, you'd ride horses and wagons and draw stuff like that"*. Wake used the visual on his sketchnote to help him remember and understand characteristics of Realism.

The rubric allowed the participants more of a structure and study guide toward the assessment. Jughead revealed, *“It helped me complete the sketch more thoroughly and like guided me. Or else it would have just found like a bunch of different pictures and words everywhere”*. He used that guide to organize his notes and was able to structure the layout of his sketchnote. Archie described how, without the rubric, *“I would be free handing it without any knowledge”*. Betty detailed, *“by using the rubric, you had everything in the unit, you needed”*. Participants used the rubric to recall information from the unit to incorporate on their sketchnote, which in turn, helped them study for the assessment without even knowing they were studying.

Ultimately, all six participants were supposed to use the rubric and create a self-assessment, but they all graded themselves as 50 out of 50 points, as high school students usually do. Thus, I was not able to use their self-assessments as I wanted to in my data analysis. Surprisingly, three out of the six did receive a 50 out of 50 on their sketchnotes.

The drawbacks of using sketchnoting as a note-taking method proved to be the time constraints. On average, the participants used all three days to complete it. In the interviews, Betty detailed how, *“Sometimes it can be a very lengthy process until you have all the time. So, it's kind of annoying, but it really helps. So, it is worth it”*. Different verbiage was used with the other five participants, but they all mentioned how long this note-taking process is compared to other note-taking methods with Betty mentioning the amount of work required for *“just a page of notes”*. This statement was reiterated by Brick when he explained, *“Drawback would be that it takes a lot more time than just writing down a sentence”*.

## **Summary**

This chapter showcased how six participants, with a variety of diversity and labels within high school, utilized sketchnoting as a note-taking method within the English curriculum. It contained results of the data broken down by the data collection methods, connected the data to the research question, and demonstrated how sketchnotes promoted a deeper understanding of the Realistic time period.

Each participant's data was categorized using the sketchnote rubric, sketchnote, assessment, cross-comparison, and interviews. Through the interviews, six narrowed down themes emerged: Pre-Knowledge of Visual Note-taking, Perceptions about Sketchnoting in the classroom, Perceptions of the usefulness of the rubric, Perceptions of Sketchnotes and the aid towards test-taking, Perceptions of Sketchnoting after completing the study, and Perceptions of the drawback of sketchnoting.

This data resulted in the conclusion that sketchnoting the Realistic time period aided in the understanding of Realism through the unit assessment. The lowest score on the assessment was a six out of eight, which was still passing. Chapter Five will address the future implications to this study along with a final conclusion.

## **Chapter 5: Discussion and Implications**

In this concluding chapter, I begin with revising the purpose of the study, and then proceed to describe interpretations, limitations, recommendations, and reflect on pedagogical implications. Finally, I offer future recommendations for research.

The purpose of this study was to determine if a specific note-taking strategy, such as sketchnoting, that encompassed using visual aids and personal connections to literature notes, could affect an 11<sup>th</sup> grade student's ability to better understand a time period in American Literature. The study was meant to explore a new concept of note-taking, sketchnotes. Six participants created, analyzed, partook in an assessment, then provided insight into their progress with visual note-taking through an interview. The study sought to answer the research question:

How does the use of sketchnoting as a note-taking method within an 11<sup>th</sup> grade English Language Arts classroom affect the students' understanding of Realism within the American Literature curriculum?

### **Interpretation of the Findings**

The research question in this study sought to determine if sketchnoting as a note-taking method could affect the students' understanding of particular concepts within American Literature. This study sets out with the aim of assessing the importance of visual note-taking. Through the combination of four data points and analyzing documents, the findings of this study provide support that the conceptual premise of sketchnoting as a visual note-taking tool promotes a higher understanding of curriculum content.

When students use visualizations, they remember and enhance their understanding of concepts (Rodger, 2009). The Realism sketchnote allowed participants to create those visualizations through Realism visuals that they visualized on their assessments. Realism concepts were presented through examples of local color, images of the five senses, and sketches of stick figures in everyday clothes doing everyday chores, and these images enhanced the participants' assessment scores. Multiple participants noted in their interviews how images would “pop into their brains” while taking the assessment. They visualized concepts being taught within the classroom without memorizing phrases or words. Sketchnoting makes thinking visible, includes linguistic and nonlinguistic representation of information, allows for student choice, strengthens memory, makes annotation thinking intensive, enhances focus and reduces stress, and embraces design (McGregor, 2019). Through these visualized concepts, every participant passed their assessment.

Studies have found that students' notes may include as little as 11 percent of the crucial information in a classroom lecture (Kiewra, 1985; Raver & Maydosz, 2010). Going through my participant's rubrics, they revealed more than 11 percent of the crucial information Realism conveys. Five out of six had 90 percent or above presented on their sketchnotes. When students are interested, they engage for a longer period of time, put in more effort, and use deeper and more active processing. These participants were actively engaged in creating their sketchnotes. Most quoted in their interviews they spent over three days working on the sketchnote. Using either guided notes, mapping, outlining, or charting as a note-taking method will not engage students for three days. And, as Kiewra (1985) and Raver and Maydosz (2010) note, students still miss crucial information.

As mentioned in Chapter 2, humans must construct their own knowledge (Piaget, 1953). The goal of sketchnoting was to actively engage students into compiling their thoughts or ideas, creating personal connections to Realism, and producing a structure to their notes that make sense to them as individuals. Going through my participant's sketchnotes, not one was the same. They all constructed their format differently, balanced their texts and images differently, and even wrote examples that were personal to them as individuals. While using sketchnoting, the participants visually identified key ideas and details of Realism that provided confidence in their ability to comprehend their notes as a way that made sense to them.

In summary, sketchnoting as a note-taking method did affect the students' understanding of Realism. However, the time it takes to produce a sketchnote should be taken into consideration when implementing this method. These results, along with the results from the rubric, assessment, and interview demonstrate that, when sketchnotes are implemented, they promote a higher understanding of the content being taught within a classroom.

### **Limitations of the Study**

The two most impactful limitations of this study were the lack of diversity in my sample size and the limitation of one subject matter within a six-week timeframe. Although I included males and females, two racial groups, and four county defined labels to include a diverse sample, I still felt as though the sample lacked diversity. Also, the sample did not include a wide variety of learning levels past a student with a 504 plan. The limitation of diversity could be addressed in future studies of visual note-taking.

Another limitation of the study includes one subject matter with the abbreviated timeframe. By expanding the content, participants in the study, and the time frame to the course of an entire year, an examination could take place within multiple units of studies instead of one. Also, by expanding the content of study, other understanding of visual note-taking in multiple content areas could take place.

### **Recommendations**

The current study investigated visual note-taking within one unit of the American Literature curriculum, but future research could investigate other content areas that participants take during high school. Specifically, to develop a full picture of sketchnoting, researchers could evaluate if sketchnoting in a History or Math classroom could affect changes in students' assessment scores. Further, this study's analysis only investigated one unit of study. By sketchnoting multiples units of study, the topics could be further explored. Further studies, which take these issues into account, could be the next undertaking in the development of sketchnotes.

A second recommendation for additional research is the idea of not providing a rubric and observing how participants create their own boundaries and guidelines. During interviews, participants mentioned how much the rubric aided in their structure. Future research could evaluate, if the researcher takes away that structure, would the assessment scores change. There are still many unanswered questions about if a rubric helps or if students should have free range to create their own structure.

This was a qualitative study, strongly focused on how visual aids on sketchnotes promoted understanding. Moving forward, a researcher could change this to a quantitative research study that could focus on test scores with the assistance of a

sketchnote or without. Analyzing assessment scores could be useful for teachers who are questioning using visual note-taking in their classroom. Having numerical data could drive this study forward noting a different approach.

### **Implications**

High school classrooms today offer many opportunities for students to process information linguistically: listen to lectures explaining content, read and write about that content, and other instructional methods. However, students have fewer opportunities to process information nonlinguistically (Marzano, 2017). Creating a space in classrooms where teachers can combine both linguistic and nonlinguistic information will result in a deepened processing approach for student learning (Paivio, 1990). As noted in the student interviews, sketchnoting allowed students to combine key details of Realism with their own visual representations. This provided students with a new note-taking method that went beyond memorization and details of the unit. It provided them with a platform to create personal connections with their notes while also being used as a learning tool. Studies suggest that instruction using both linguistic and nonlinguistic strategies have a positive impact on student learning (Paivio, 1990). Through the cross-comparison, sketchnotes proved to have a positive impact on student learning. The images presented on the participants' sketchnotes corroborated their assessment answers. This is an approach that could be used by schools and classroom teachers to help promote student learning.

Sketchnoting allowed participants to combine both visual aids and texts into a dual-purpose assignment: notes and a study guide. Participants were able to use visual aids to produce an understanding of curriculum content. With the growing use of visual



texts, visual literacy skills in the classroom are needed (Tillmann, 2012). Teaching students how to use visual skills to learn and understand could benefit the classroom. Classroom teachers should continue to evolve how they present notes and the different effects that note-taking models can have on understanding. We must determine what works for our students for the world they live in today with that world being saturated with images.

### **Conclusion**

Visual note-taking is something that piqued my interest many years ago. First, it started as a scaffold to help my ESOL students understand vocabulary, and then it evolved into this study. Never in my wildest dreams did I think my research was going to be over drawing, as I am an awful artist myself. Yet, through the past two years of research and data analysis, here we are. Students enter my classroom knowing I am the “sketchnote teacher” now. It will be official.

Through this study, I was amazed watching what my students and participant, produced, the effort put forth, and the personal connections they created with just notes. Even two months later, I can ask what an element of Realism is, and they can reply correctly. Analyzing the cross-comparisons was the longest, yet most eye-opening data point. Not knowing how the connection between their sketchnotes and their test scores would be, I was amazed that if an element was not presented on their sketchnote, they got the assessment questions wrong. However, there were just six participants, which might not be a diverse enough sample. I am intrigued to analyze past sketchnotes to assessment scores. Or, hopefully, I will read about it in someone else’s study.

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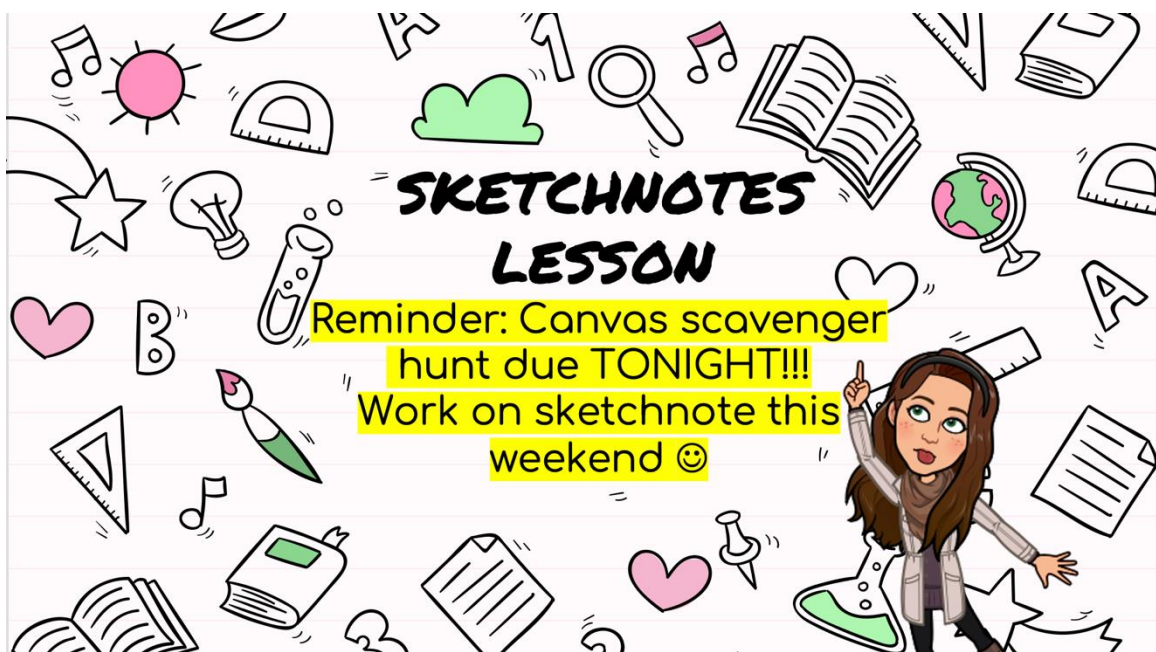
<https://doi.org/10.1080/00461520701621038>

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## Appendices



## Appendix A: Sketchnote Lesson



**AGREE OR DISAGREE?**

**A PICTURE IS WORTH A  
THOUSAND WORDS**



Fill out your  
guided notes  
while we watch  
the video!



## ASSIGNMENT

YOU will be sketchnoting what you think it means to be the main character in your story (aka life)

Let's see what I mean...

# EXAMPLES CAN BE FOUND ON TIKTOK



**HOW TO LIVE AN AMAZING LIFE** C.C. CHAPMAN ecc-chapman #3TYYZ  
THIRD TUESDAY TORONTO JUNE 11, 2013

**Define amazing**  
What does it mean for you?  
Then you can figure out how to get there

**Shout-out for sketchnoting**  
It's the coolest thing in the world to get a picture of what you talked about

**Give back**  
Volunteering hurts, but it's the greatest feeling  
Advocate causes, share your skills  
- opportunity -  
NO to Text messaging while driving  
There's an example of something CREATIVE & new

**Have FUN!**  
Play around with your process/environment/whatever, and make it fun.  
Celebrate the little victories  
not just the big ones!  
Find a partner who's supportive

**Work-life balance is BS.**  
Embrace being WEIRD  
You can't control everything  
Rules are like rubber bands  
Turn off most notifications  
Never stop wondering and wandering  
Get out there & read the opposition  
always keep LEARNING

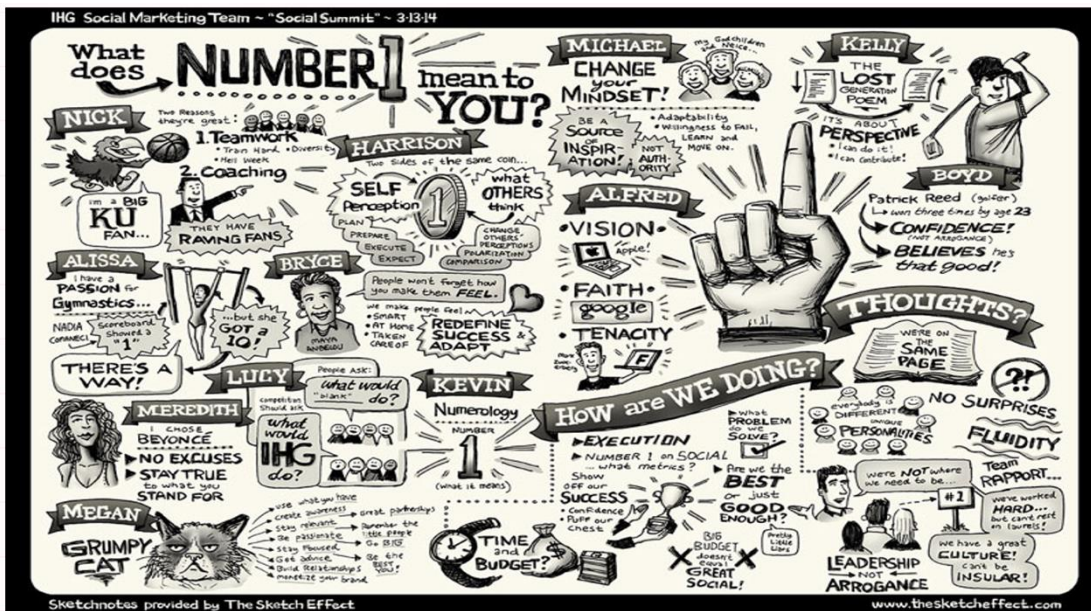
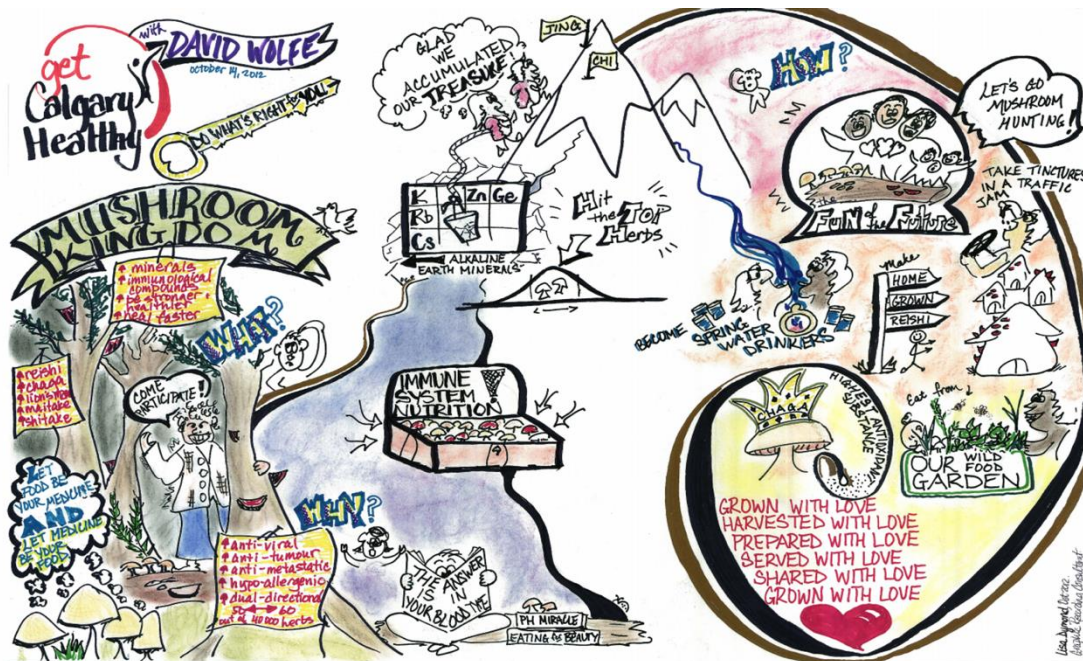
**Normal is BORING**  
Everyone's careers: squiggly  
push support challenge  
solid friendships  
smartphones  
Bedroom Dining Bathroom  
workshifting

**Q&A:**  
 1 How did you break through that wall?  
 2 Happens a lot. Story about consulting. Hated my work, so I quit. Helps to have faith that things will work. Also, kids. Motivate, recharge.  
 3 Trusting your gut?  
 4 It's never let me down. The more you use it, the better it gets.  
 5 Planning? Winging it?  
 6 Balance - cover your bases commitments safely get from A to B  
 7 Kids' response? 8 They get a kick out of it. Yes, I think about it a lot. I don't write about them much now. (Friends parents...)

2 PRISM? 3 Not shocked. 4 Once you make that commitment, providence opens doors for you. 5 Yes, let the world know, ask friends

BE GOOD

Sketched by Sacha Christ (teacher) **ExperiVis rVis**



## ALTERNATIVE ICONS

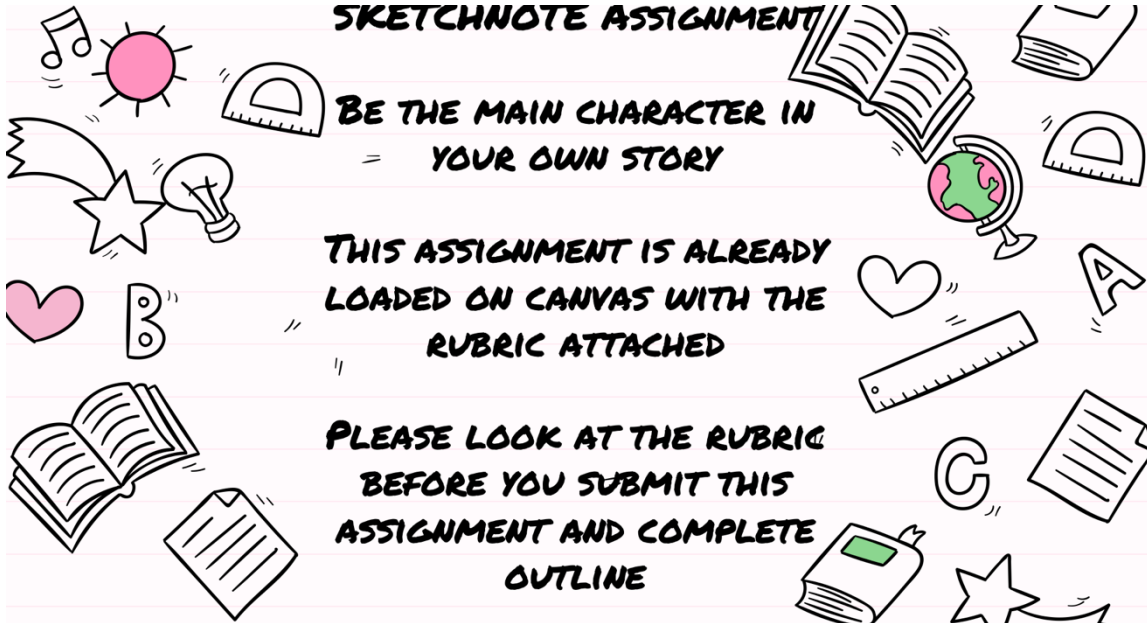


**SKETCHNOTE ASSIGNMENT**

**BE THE MAIN CHARACTER IN  
YOUR OWN STORY**

**THIS ASSIGNMENT IS ALREADY  
LOADED ON CANVAS WITH THE  
RUBRIC ATTACHED**

**PLEASE LOOK AT THE RUBRIC  
BEFORE YOU SUBMIT THIS  
ASSIGNMENT AND COMPLETE  
OUTLINE**



## Appendix B: Rubric

### Realism Sketchnote

Taking your Realism notes from this unit, create a visual note-page that organizes and connects your understanding to visuals or text. Pay close attention to how you are going to structure this sketchnote. Create connections that make sense to you so that you can remember these concepts on your summative exam. Use the following rubric to guide your organization for your sketchnote

### Rubric

Criteria	Ratings				Pts
<b>American Literature Time Period and dates creatively displayed</b> What time period are we in? What years did this time period take place?	2 pts Full Marks	1 pts Missing one out of the two			2 pts
<b>Elements of Realism in Literature</b> -Make sure to include how Americans wanted to read clear language that they could connect to and move away from the Romantic philosophical language (photo would be good here)	2 pts Clear language was exhibited on the sketchnote Think of a image that shows clear, connectable language in our lives.		1 pts Did not showcase well the language that Americans w to connect to		2 pts
<b>Main Elements of Realism</b> -Include the four main elements of Realism: 1) Local color/everyday language 2) real everyday characters, 3) everyday events 4) intense detail (the five senses-great place to add photos)	15 pts All four elements are presented on the sketchnote via visual or example	11 pts 3/4 presented	7 pts 2/4 Presented	3 pts 1/4 Present	15 pts
<b>Includes historical references of moving from Romanticism to Realism</b> -Why/how did Realism start? -What was American's focus at this time? -Think about what was happening in America--what society was going through to make them leave Romanticism?	5 pts Showcased how Realism started. Included moving from Romantism to Realism		3 pts Did not include why people moved away from Romanticism		5 pts
<b>Unit Vocab: What is Naturalism?</b> -Define Naturalism -Include an example from a Naturalistic text (the ones we read)	4 pts Definition and example presented		2 pts Missing either the example or definition		4 pts
<b>Unit Stories</b> Include an image, characters, plot lines, structural elements, or anything else from these stories you remember. You only need ONE element per story "Poker Flat" "Story of an Hour" "Jumping Frog" "To Build a Fire"	12 pts All four stories presented and one element is included per story		9 pts Missing one of the stories	6 pts Missing two of the stories	12 pts

Criteria	Ratings			Pts
<b>Elements of a Sketchnote</b> Images, text, and structure is all present. Sketchnote is full color. MAKE SURE YOUR SKETCHNOTE ISN'T FULL OF TEXT	10 pts Full Marks	8 pts Effort Missing one of the elements and not full effort put forth	4 pts Effort Missing two of the elements and only h effort put forth	10 p ts
<b>Total Points: 50</b>				

## Appendix C: Realism Test

### Realism Test

#### Literary Structure: Match the structural element to the definition:

- |                  |  |
|------------------|--|
| 1. Juxtaposition | a. a scene that takes place before a story begins.                         |
| 2. Flashback     | b. Someone or something that encourages progress or change.                |
| 3. In Media Res  | c. two things being seen or placed close together with contrasting effect. |
| 4. Catalyst      | d. into the middle of a narrative  |

#### Realism Background

5. How did Realism start?
  - a. Americans wanted to read clear language that they could connect to as opposed to the philosophical language of Romanticism
  - b. Americans wanted to read about the beauty of nature and how nature could save mankind
  - c. Americans wanted to read about how heaven and hell exist and what we should and shouldn't do to get there
  - d. Age of Reason pushed the develop of Realism because of the scientific structure
  
6. Naturalism, a branch of Realism \_\_\_\_\_ .
  - e. focused on portraying forces of nature that are greater than mankind and controlling our lives.
  - f. focused solely on war stories, including diaries and journals of soldiers and wartime victims.
  - g. focused on the loss people experienced and began to creatively write obituaries.
  - h. focused on portraying real life as ordinary people lived it and live happily.
  
7. Which of the following is not an element of Realism?
  - i. Local color
  - j. Everyday language
  - k. Everyday characters
  - l. Romantic notations
  
8. Which of the follow quotes is an example of Realism?
  - m. "I reckon they're after somebody"
  - n. "I found Wheeler dozing comfortably by the bar room stove of the dilapidated tavern in the decaying mining camp of Angles"
  - o. "Why, it never made no difference to him-he'd bet on anything-the dangdest feller"
  - p. All of the above
  
9. True or False: A typical character in a Realist piece of work would be highly educated and from the upper class.
  - q. True
  - r. False
  
10. Local color is \_\_\_\_\_.
  - s. A variation of language spoken by a particular group, often within a particular region.
  - t. Formal speech that people use in everyday conversation.
  - u. The portrayal of a region's distinctive ways of behaving.
  - v. The distinctive use of language that conveys the author's or narrator's personality to the reader.
  
11. The following quote is an example of what element of Realism?
 

"Ah, come off! I got dis can fer dat ol' woman an' it 'ud be dirt the swipe it. See?" cried Jimmie."

  - a. Sense of place
  - b. Fatalism
  - c. Foreshadowing



## w. Local Color

12. In the following passage, what literary technique does Crane *most* utilize to develop a sense of place?  
*Above the muffled roar of conversation, the dismal wailings of babies at night, the thumping of feet in unseen corridors and rooms, mingled with the sound of varied hoarse shouting's in the street and the rattling of wheels over cobbles.*
- Crane paints a vivid picture of the setting so the reader can visualize how run down the area is.
  - Crane draws upon the sounds of the area so the reader can infer that the area is very poor and run down.
  - Crane explains that there is a lot of wealth in the area.
  - Crane uses characterization to show that the characters are poor, and the area is too.

**Answer the following questions based off Bret Harte's "The Outcasts of Poker Flat"**

13. The following quotes functions as what literary device? \_\_\_\_\_.  
*It was undoubtedly, the most suitable spot for a camp, had camping been advisable. But Mr. Oakhurst knew that scarcely half the journey to Sandy Bar was accomplished, and the party were not equipped or provisioned for delay.*
- imagery
  - local color
  - personification
  - foreshadowing
14. What does the following passage characterize Mother Shipton as?  
*"Take the bundle from under my head," said Mother Shipton. Mr. Oakhurst did so. It contained her rations for the last week, untouched. "Give them to the child," she said.*
- self-less
  - angry
  - hateful
  - selfish
15. True or False: This story reinforces the idea that some people are worthless and should be forced out of society.
- True
  - False

**Answer the following questions based off Kate Chopin's "Story of an Hour"**

16. How do we know this story is from the Realistic time-period?
- Chopin exemplifies the everyday roles of females
  - Chopin describes how people die everyday
  - Chopin explains that we should not listen to our friends
  - Chopin uses very southern dialect such as "y'all"

17.

**Answer the following questions based off London's "To Build a Fire"**

18. The story suggests that the man (the narrator) has never before
- been in mountain ranges
  - experienced weather so cold
  - failed to see the sun on a clear day
  - broken through ice
19. "The man hasn't been in the region long enough to realize that what the old-timer said about extreme cold is true. He doesn't understand just how deadly the extreme cold can be—when it was too late, he finally did"  
 The above statements would best support the idea that the most responsible component of the man's death is
- The old timer
  - Himself, not listening
  - Low self esteem
  - Impatience
20. The relationship between the man and the dog is based on what, and shows what narrative structure?
- Affection and love—catalyst
  - Nothing—they were just lonely—foreshowing

- c. The dog's instinct to follow the human who builds fire---juxtaposition  
 d. The dog just followed the man to keep the man company—In media res
21. Besides the extreme cold, what, in your opinion, is most responsible for the man's death - a flaw in his character, bad luck, his dog, or something else? Support your opinion with reference to the story.  
A student selects bad luck as the most responsible for the man's death. Which of the following statements would best support this answer?
- a. The frozen river with hidden springs is part of the region that he does not know about.  
 b. The man's reaction to the wilderness and desolation shows how surprised he is by his surroundings.  
 c. An experienced resident warned him against this danger, and even the dog knows that they should be seeking shelter.  
 d. Despite being very careful, he falls through the ice and gets his feet wet.
22. Besides the extreme cold, what, in your opinion, is most responsible for the man's death - a flaw in his character, bad luck, his dog, or something else? Support your opinion with reference to the story.  
A student selects the man's arrogance as the most responsible for the man's death. Which of the following statements would best support this answer?
- a. The older, experienced resident warned him against this danger, against traveling alone in such temperatures, but the man ignores the advice.  
 b. The frozen river with hidden springs is part of the region that the man does not know about.  
 c. The snow falls on the fire which puts it out.  
 d. He doesn't expect the wilderness and desolation.
23. Read the following constructed response. Which theme statement would this response support?

In London's "To Build a Fire" the dog's survival and eventual arrival in camp emphasizes that nature is superior to man. As an animal and thus a part of nature, the dog survives whereas the man cannot. Just as the man's pride prevents him from "recognizing the threat of the cold", the dog's lack of pride and honed instinct keeps him wary of the trail. Ultimately, when the man dies, the dog does not remain out of a sense of loyalty and die with the man. Instead, as the dogs smells death, it follows its instinct to survive and goes to the next camp to find fire and food. The conclusion of the story supports the theme statement of

---

- a. In a battle between man and nature, nature will always win.  
 b. Pride is needed to survive adversity.  
 c. The tone is sympathetic towards the man.  
 d. The dog is man's best friend.

## **Appendix D: Interview**

### **Interview Questions:**

1. Before this class, what did you know about visual note-taking?
2. Before this class, what were your experiences with visual note-taking?
3. Thinking about your experience with visual notes in my classroom, how would you describe the benefits of Sketchnoting? Describe examples to illustrate your response.
4. Thinking about your experience with visual notes in my classroom, how would you describe the drawbacks of Sketchnoting? Describe examples to illustrate your response.
5. A rubric was provided to you in order to help you complete your Sketchnote. How did the rubric aid you in completing your Sketchnote?
6. Describe how the Sketchnote and process might have been different if you had to complete the Sketchnote without a rubric.
7. How did creating a Sketchnote and self-assessing based off the rubric prepare you for the assessment?
8. How has sketchnoting aided you in test-taking? Describe examples to illustrate your response.
9. How do you feel about visual note-taking now that you have completed a Sketchnote? Describe examples to illustrate your response.
10. How has your note-taking or test preparation changed overall since learning about Sketchnoting?
11. How will you use Sketchnoting as a note-taking strategy moving forward?
12. Before we conclude this interview, is there anything else you would like to share about your experience with visual note-taking and the effect it had on your assessment?

●

**Thank you for your participation in this interview!**

## Appendix E: Lesson Plan

### *American Lit* *Introduction to Sketchnotes*

- **What are we learning today?**
  - I am learning
    - The value of visual note-taking
    - How to connect visuals to information
    - How to illustrate curriculum content
    - How to create personal connections to learnt material
    - How to create a theme concept for my sketchnote
- **How will I show what I learned?**
  - I can
    - Fill out my guided notes to show mastery over visual note-taking
    - Create connections that showcase curriculum content
- **Today's Agenda**
  - Pass out the guided notes
  - Watch the video about how to draw
    - It is a TedTalk 15-min linked below
      - <https://www.youtube.com/watch?v=gj3ZnKlHqxI&t=591s>
  - Fill out guided notes
    - Powerpoint attached
  - Review different ways to create a sketchnote
    - Vertical, horizontal, title big in the center, etc
  - Showcase how to create a visual that connects to English content, connects to an idea, connects to self, and connects to world
  - Go over sketchnote assignment
- **Homework/Due Dates**
  - Tonight
    - Syllabus
    - Scavenger Hunt
  - 8/11
    - “Be the Main Character in your own Story” Sketchnote due
- **Files and Resources**
  - See appendix

## Appendix F: IRB Kennesaw

Feb 14, 2022 2:01:26 PM EST

Rachael Bourne  
EDU-Secondary & Middle School

Re: Initial - IRB-FY22-320 - The Art of Sketchnoting in a High School Language Arts Classroom

Dear Rachael Bourne:

The above referenced project has been determined to meet the criteria for Exemption (45 CFR 46.104). The research activities may begin February 14, 2022.

Upon completion of the project, a study closure request must be submitted. If project remains active as of February 14, 2025, a progress report will be requested.

Review categories cited in making this determination: Category 1. Research, conducted in established or commonly accepted educational settings, that specifically involves normal educational practices that are not likely to adversely impact students' opportunity to learn required educational content or the assessment of educators who provide instruction. This includes most research on regular and special education instructional strategies, and research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

Findings:

Notes for Researchers: Minor changes made to the consent documents. Please find final versions on the Study Details page or the Submission Details page under the tab labeled "attachments".

For more information on KSU policies related to exempt research, please see [IRB Policy: Exempt Research](#).

Sincerely:  
Kennesaw State University Institutional Review Board

Appendix G: IRB County Approval

CHEROKEE COUNTY SCHOOL DISTRICT  
REQUEST FOR PERMISSION TO CONDUCT RESEARCH WITHIN THE SYSTEM

Name: Rachael Bourne

CCSD Employee: YES  NO  If NO, list employer: \_\_\_\_\_

Position or Grade: English Teacher/11th School: \_\_\_\_\_

Research Title: The Art of Sketchnoting in a High School Language Arts Classroom

Reason for doing this research:

Graduate Study/Level: Doctorate University/College: Kennesaw State University

Publication/Presentation: N/A Journal/Conference: N/A

Other (please specify): N/A

I

Include with this request:

- A letter from your supervising professor on college or university letterhead indicating support for your research and his/her confirmation of data collection validity. You may include IRB approvals as applicable.
- A brief summary of the issues being researched and the type of data collection you are requesting to conduct.
- Method of data collection assessment; Number of respondents, etc.
- Participant consent forms must be included if data will be collected on individual students, parents and/or staff.
- Copy of interview questions, surveys, etc., that will be used.
- If student data is analyzed and/or used, a notarized "Release of Educational Records for Research Purposes Confidentiality Statement" will be required.

I, Rachael Bourne do hereby submit to not hold the Cherokee County School District liable for any findings, or commentary involved in this research. I understand that without the express written permission of the Cherokee County School Board of Education, I am not authorized to conduct any data collection involving district employees or students and/or any other information that is protected by Federal or State Law. Furthermore, a copy of all finding and data collection instruments will be made available to the Cherokee County Board of Education as requested. All research is to be sent to the Research Services Department upon completion of the project.

Signature: [Signature] Date: 2/3/22

Signature of Principal (if applicable) [Signature] Date: 2/4/22

Send request to: Dr. Jennifer Scrivner, Supervisor, Research Services, Technology & Information Services

Jennifer Scrivner Staff Use Only  Permission given  Permission denied

Department of Research Services

Special Conditions:

## Appendix H: Interview Protocol

### Interview Protocol

Interview # \_\_\_\_\_ Date \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

Welcome and thank you for your participation today. My name is Rachael Bourne, and I am a graduate student at Kennesaw State University conducting a research project titled **The Art of Sketchnoting in a High School Language Arts Classroom**. Basically, I want to know what you think about Sketchnotes in the classroom. This interview will take about 30 minutes and will include 12 questions regarding your perceptions and experiences on Sketchnoting in this class. I would like your permission to audio record this interview, so I may accurately document the information you convey. All of your responses are confidential, and they will be used only for the purposes outlined in the consent form.

At this time, I would like to ask for your verbal consent and also inform you that your participation in this interview also implies your consent. Your participation in this interview is completely voluntary. If at any time you need to stop, take a break, or return a page, please let me know. You may also withdraw your participation from the interview or the study at any time without consequence.

Do you have any questions or concerns before we begin? Then, with your permission, we will begin the interview.

Appendix I: Realism Assessment Zipgrades

Wake:

38 710

Name \_\_\_\_\_

Period lit comp

ZIPGRADE.COM

Realism Test (5120)

1	A	B	C	D	E	14	A	B	C	D	E
2	A	B	C	D	E	15	A	B	C	D	E
3	A	B	C	D	E	16	A	B	C	D	E
4	A	B	C	D	E	17	A	B	C	D	E
5	A	B	C	D	E	18	A	B	C	D	E
6	A	B	C	D	E	19	A	B	C	D	E
7	A	B	C	D	E	20	A	B	C	D	E
8	A	B	C	D	E	21	A	B	C	D	E
9	A	B	C	D	E	22	A	B	C	D	E
10	A	B	C	D	E	23	A	B	C	D	E
11	A	B	C	D	E	24	A	B	C	D	E
12	A	B	C	D	E	25	A	B	C	D	E
13	A	B	C	D	E						

Key

Betty:

46 921

Name \_\_\_\_\_

Period 2nd

ZIPGRADE.COM

Realism Test (5120)

1	A	B	C	D	E	14	A	B	C	D	E
2	A	B	C	D	E	15	A	B	C	D	E
3	A	B	C	D	E	16	A	B	C	D	E
4	A	B	C	D	E	17	A	B	C	D	E
5	A	B	C	D	E	18	A	B	C	D	E
6	A	B	C	D	E	19	A	B	C	D	E
7	A	B	C	D	E	20	A	B	C	D	E
8	A	B	C	D	E	21	A	B	C	D	E
9	A	B	C	D	E	22	A	B	C	D	E
10	A	B	C	D	E	23	A	B	C	D	E
11	A	B	C	D	E	24	A	B	C	D	E
12	A	B	C	D	E	25	A	B	C	D	E
13	A	B	C	D	E						

Key



Jughead:

48 961.

Name [Redacted]

Period 6<sup>th</sup>

ZIPGRADE.COM

1	A	B	C	D	E	14	A	B	C	D	E
2	A	B	C	D	E	15	A	B	C	D	E
3	A	B	C	D	E	16	A	B	C	D	E
4	A	B	C	D	E	17	A	B	C	D	E
5	A	B	C	D	E	18	A	B	C	D	E
6	A	B	C	D	E	19	A	B	C	D	E
7	A	B	C	D	E	20	A	B	C	D	E
8	A	B	C	D	E	21	A	B	C	D	E
9	A	B	C	D	E	22	A	B	C	D	E
10	A	B	C	D	E	23	A	B	C	D	E
11	A	B	C	D	E	24	A	B	C	D	E
12	A	B	C	D	E	25	A	B	C	D	E
13	A	B	C	D	E						

Realism Test (5120)

Key: A B

Brick:

40 801.

Name [Redacted]

Period [Redacted]

ZIPGRADE.COM

1	A	B	C	D	E	14	A	B	C	D	E
2	A	B	C	D	E	15	A	B	C	D	E
3	A	B	C	D	E	16	A	B	C	D	E
4	A	B	C	D	E	17	A	B	C	D	E
5	A	B	C	D	E	18	A	B	C	D	E
6	A	B	C	D	E	19	A	B	C	D	E
7	A	B	C	D	E	20	A	B	C	D	E
8	A	B	C	D	E	21	A	B	C	D	E
9	A	B	C	D	E	22	A	B	C	D	E
10	A	B	C	D	E	23	A	B	C	D	E
11	A	B	C	D	E	24	A	B	C	D	E
12	A	B	C	D	E	25	A	B	C	D	E
13	A	B	C	D	E						

Realism Test (5120)

Key: A B

Archie:

50 100%

Name [Redacted]

Period 3rd

ZIPGRADE.COM

Realism Test (5120)

1	A	B	C	D	E	F	14	A	B	C	D	E
2	B	C	D	E	F	A	15	A	B	C	D	E
3	A	B	C	D	E	F	16	A	B	C	D	E
4	A	B	C	D	E	F	17	A	B	C	D	E
5	A	B	C	D	E	F	18	A	B	C	D	E
6	B	C	D	E	F	A	19	A	B	C	D	E
7	B	C	D	E	F	A	20	A	B	C	D	E
8	A	B	C	D	E	F	21	A	B	C	D	E
9	A	B	C	D	E	F	22	A	B	C	D	E
10	A	B	C	D	E	F	23	A	B	C	D	E
11	A	B	C	D	E	F	24	A	B	C	D	E
12	A	B	C	D	E	F	25	A	B	C	D	E
13	A	B	C	D	E	F						

Key: A ● B ○

Veronica:

44 88

Name [Redacted]

Period 2/7/22

ZIPGRADE.COM

Realism Test (5120)

1	A	B	C	D	E	F	14	A	B	C	D	E
2	B	C	D	E	F	A	15	A	B	C	D	E
3	A	B	C	D	E	F	16	A	B	C	D	E
4	A	B	C	D	E	F	17	A	B	C	D	E
5	A	B	C	D	E	F	18	A	B	C	D	E
6	B	C	D	E	F	A	19	A	B	C	D	E
7	B	C	D	E	F	A	20	A	B	C	D	E
8	A	B	C	D	E	F	21	A	B	C	D	E
9	A	B	C	D	E	F	22	A	B	C	D	E
10	A	B	C	D	E	F	23	A	B	C	D	E
11	A	B	C	D	E	F	24	A	B	C	D	E
12	A	B	C	D	E	F	25	A	B	C	D	E
13	A	B	C	D	E	F						

Key: A ● B ○

### Appendix J: Interview Codes

<b>Pre-Knowledge of Visual Note-taking</b>	<b>Perceptions about Sketchnoting in the classroom</b>	<b>Perceptions of the usefulness of the rubric</b>	<b>Perception of Sketchnote and the aid towards test-taking</b>	<b>Perceptions of Sketchnoting after completing the study</b>	<b>Perceptions of the drawbacks of Sketchnoting</b>
1) No knowledge 2) Somewhat 3) Heard before	1) Positive 2) Help prepare 3) Recall and remember 4) Review 5) Options 6) Connections	1) Guide 2) Structure 3) Study guide 4) Make good grades following rubric 5) Check-list	1) Help visualize 2) Provided examples 3) Focus 4) Ability to understand 5) Not failed	1) Helped moving forward 2) Much better than writing regular notes 3) Using outside Lit class	1) Time constraint 2) Multiple days 3) More time than notes 4) Long process 5) More focus

**Appendix K: Codebook**

Code	Code Description	Example
1 No knowledge	Participants had no understanding of visual note-taking,	“Absolutely nothing.”
2 Somewhat	Participants had either completing visual note-taking one or two times, but did not go in-depth with the method.	“I had done it some my sophomore and freshman year but it wasn't like as in depth as we do today. Like now, my junior year.”
3 Heard Before	Participants had heard from peers about visual note-taking.	“I had heard of them from older students because of your class, but I've not done on one before.”
4 Positive	Participants had a positive perception about visual note-taking within the classroom.	“I think the benefits of sketch noting in your class has greatly like positively changed my outlook on note taking and how I should study.”
5 Help Prepare	Participants noted how visual-note taking helped prepare them for content in the classroom.	“100% Yes, there is a very big difference in my test grades from when I was doing a regular review versus when I did my visual sketchnoting and I, I recommend them to any student who is struggling because I was prepared.”
6 Recall and Remember	Visual note-taking allowed participants to recall and remember information within the classroom.	“It helps me memorize material better than just looking at definitions. Like I can draw mountain images and remember the pictures.”
7 Review	Visual note-taking allowed participants to	“Everything on the rubric is was everything that we

		review concepts within the classroom.	learned over the unit. And what we had to have on the sketch note, so by using the rubric, you had everything in the unit, you needed to review with.”
8	Options	Visual note-taking was another method of note-taking within the classroom and allowed an alternative note option to participants.	“And it's a better source of notes like it, because you can visually and like, we had to learn the five senses. So I drew all the five sentences that helped me memorize really well.”
9	Connection	Participants were able to connect personally with their notes.	“It makes it a lot easier to remember and like retain the information we're learning simple things like a theme maybe because you can just write down like a picture that you had in your own head about it. And that's easier to remember than a long description, definition.”
10	Guide	Participants used the rubric as a guide to complete their sketchnote.	“It helped me complete the sketchnote more thoroughly and like guided me. Or else it would have just found like a bunch of different pictures and words everywhere.”
11	Structure	Participants used the rubric to structure their sketchnote.	“Without it I would probably draw a lot of random pictures that don't really have anything to do with the material which would just waste time.”

12 Study Guide	Participants used the rubric as a study guide for the assessment.	“Basically was a study guide and basically gave you the outline of what you should know and what you should be prepared for on the test.”
13 Make good grades following rubric	Participants used the rubric and made a good grade on their sketchnote.	“Well, it gives me everything that is going to be graded so if I do everything on the rubric, then I should get a perfect score.”
14 Check-list	Participants used the rubric as a check-list to complete their sketchnote.	“The rubric basically laid out every single detail that we needed on the sketch note and then you would have to choose which way you wanted to put that thing or that topic on the sketch net, which helped me a lot because it's like a checklist is basically giving you the outline of your sketch now and you just have to fill it in yourself.”
15 Help Visualize	The sketchnote allowed the participants to help visual answers and concepts on the assessment.	“It helps me visualize the like questions on the test. I can remember images and little sayings that I put on my sketch.”
16 Provided Examples	The sketchnote helped provide examples on the assessment.	“...everything from this sketchnote was on the test, and I had to put like evidence in quotes from stories we had read on the sketchnote, which helps with examples on the tests”
17 Focus	The sketchnote helped focus the participants	“Well, it makes me kind of draw and see what's

		towards what the assessment was going to be on.	going to be on the test and forces me to recall old information.”
18	Ability to understand	The sketchnote allowed the participants a deeper ability to understand concepts on the assessment.	“...just having easier thing to remember.”
19	Not Failed	The sketchnote helped the participants not fail the assessment.	“I’ve been pretty good on tests this year. I’ve got good grades haven’t failed any this year. So I feel like it’s helped.”
20	Helped Moving Forward	After the study, participants were going to use visual note-taking moving forward.	“I like it, and I’m going to use it throughout my school career to help me better my ability on tests.”
21	Much Better than writing regular notes	After the study, participants stated that visual note-taking was better than regular class notes.	“I like them a lot better than regular notes and like regular reviews to turn in because it’s if you get to put your own like spin on a note or like example from a taxi you need to know.”
22	Using outside Literature Class	Participants were going to use visual note-taking as a tool outside the researchers classroom.	“I will definitely be using it a lot more and not even in my lit class but science classing classes as well, probably because with the visual learning and all the equations and all that stuff, I think that it would be a lot easier.”
23	Time Constraint	Completion of the sketchnote had time constraints than what usual note-taking methods do.	“The three days that it took to do our realism sketchnote.”

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| 24 Multiple Day         | Sketchnote completion took multiple days to complete.                      | “No, it's taken me a couple days, probably five hours total doing it.”   |
| 25 More Time than Notes | Sketchnotes took more time to complete than other class notes.             | “The amount of time it takes to write your sketch verses other notes.”   |
| 26 Long Process         | Sketchnote completion was a longer process than other note-taking methods. | “Drawback would be that it takes a lot more time than just writing down a sentence.”   |
| 27 More Focus           | Sketchnotes needed more focus than other note-taking methods.              | “Sometimes it can be very lengthy process until you have all the time to focus. So it's kind of it's annoying, but it really helps. So it's worth it.” |