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A Wrinkle in Autism Literature: An Analysis of Madeleine L'Engle's A Wrinkle in Time and Hope Larson's A Wrinkle in Time: The Graphic Novel

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A Wrinkle in Autism Literature: An Analysis of Madeleine L'Engle's *A Wrinkle in Time* and
Hope Larson's *A Wrinkle in Time: The Graphic Novel*

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Abstract

This literature review will examine Madeleine L'Engle's classic intermediate novel *A Wrinkle in Time*, and Hope Larson's *A Wrinkle in Time: The Graphic Novel*. Medical scholarship regarding autism, comics scholarship, and comments from online contributors are used to describe how a comparison of these two texts can provide positive representation of autism in literature.

Consideration for how these texts can be used together in the Language Arts classroom to develop the comprehension skills of students on the spectrum is also considered. This thesis first examines the character Charles Wallace in L'Engle's original text and how he represents a positive presentation of an autistic character. Next, the comic conventions in Larson's adaptation are examined and used to show how these two texts can be used together to address common comprehension challenges ASD students face when reading narrative texts.

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List of Abbreviations

ADDM - Autism and Developmental Disabilities Monitoring

ASD – Autism Spectrum Disorder

CDC - Centers for Disease Control

DSM-5 - Diagnostic and Statistical Manual of Mental Disorders

List of Comic Elements Referenced

Closure - Closure is defined as the “phenomenon of observing the parts but perceiving the whole” (McCloud, 1994, p. 63), or mentally filling in the gaps and providing meaning between two panels.

Frame or Panel - A frame or panel is one drawing on a page that contains a segment of action (Eisner, 1985, p. 45).

Gutter - A gutter is the space between panels (Eisner, p. 157)

Word Bubble - A word bubble represents the speech or thought of a character in the comic.

Introduction

The definition of literacy has grown in recent years to encompass much more than simply the ability to read and write written text. An emphasis on multimodal literacy has taken its place, and the idea behind the word “text” has taken on new meaning as “anything in the surrounding world of the literate person” (Carter, 2007, p. 12). This shift in the definition of what constitutes literacy provides the opportunity for educators to use newly classified literature to support literacy skills in their classrooms. One such group that could benefit from instruction that considers multiple forms of literature are students who have been diagnosed with Autism Spectrum Disorder, or ASD. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), autism is a neurodevelopmental disorder defined by deficits in social exchanges and a tendency toward repetitive patterns of behavior (American Psychiatric Association, 2013). As reported by the Centers for Disease Control (CDC) Autism and Developmental Disabilities Monitoring (ADDM) network, the rate of ASD diagnoses was updated in 2014 to 1 in 59 children, up from the previously reported 1 in 68 (CDC, 2014). The prevalence of this disorder amongst children makes access to targeted interventions a continued necessity for ASD learners.

Students with ASD face a lack of representation in the narrative texts and other forms of media they are being asked to read, as well as problematic representations of autism when it is present (Belcher & Maich, 2014). Students are routinely being asked to develop reading comprehension skills while being given materials that do not relate to their life with ASD. This lack of cultural representation in the texts creates a disconnect that could make it challenging to motivate ASD learners to enjoy reading. It has long been argued that the ability of students to see themselves in literature is important for many reasons, from encouraging student interest in

reading, to helping students connect with and comprehend the literature presented. The opportunity to see oneself within the text has been continually proven to be very important. Rudine Bishop presented this idea almost thirty years ago in her article “Mirrors, Windows, and Sliding Glass Doors” (1990), and others have since followed suit. Bishop’s metaphor persists today, evidenced by the National SEED Project, which addresses the diversity presented in typical school curriculum and advocates that curriculum should be a “window” and a “mirror” for students (Style, 1996). They should be able to look at their world through different windows throughout their education, allowing them opportunities to consider their own realities through a diverse set of experiences. However, students should also be given opportunities to see themselves in at least some of the educational materials, especially in literature. The lack of representations of ASD individuals presented through literature is not only keeping neurotypical students from peering through an ASD “window,” it is also hindering ASD students from encountering themselves in their own educational “mirror.” With an increasing number of individuals diagnosed as on the autism spectrum, the need for representations of ASD learners in literature is as necessary as ever.

Because the spectrum is so vast and encompasses students with a variety of skills as well as a variety of needs, there is an even greater need to determine ways to help these individuals find success in the classroom. ASD learners face a variety of challenges in a school setting. These challenges include social communication impairments and inflexibility and are likely to affect the way this subset of learners comprehends and processes new information (National Autism Center, 2015). Also of concern is the lack of knowledge on how to accommodate these individuals in the learning process. Of interest to me for the purpose of this thesis are the challenges ASD learners face when they are required to comprehend literature in the Language

Arts classroom. While many ASD learners are capable of reading at grade level, struggles still exist. Children with ASD typically have well-developed skills in word recognition, but their reading comprehension skills are generally impaired regardless of where they fall on the autism spectrum (Nation, Clarke, Wright, & Williams, 2006). The struggles ASD readers face make the comprehension of narrative texts far more challenging for them than for their neurotypical classmates. This concept goes beyond just ASD readers as even those students who are considered fluent readers will face challenges as texts become longer and more difficult, and when faced with the complex cognitive demands that reading comprehension requires (Randi, Newman, & Grigorenko, 2010). Admittedly, this topic holds a personal connection for me. My six-year-old son, Jace, was diagnosed with autism three years ago in addition to severe developmental delays, and I am slowly learning to navigate his educational needs and goals as he progresses through the public-school system. Jace is also currently non-verbal, making literary education even harder to establish for him, yet all the more important for me to consider as I am, and will always be, his greatest educational advocate.

Encouraging students like Jace to develop strong comprehension skills is an important goal in any Language Arts classroom. While this is a challenging concept for all students, it presents additional obstacles for students with ASD given the learning challenges this unique group of students face in the classroom. With so many individuals affected by this disorder, it is imperative for educators to consider modifying instruction to meet the needs of this special group of learners. This is true in the Language Arts classroom due to learning challenges students on the spectrum face. Studies of ASD readers have shown that “These children can especially benefit from interventions addressing particular cognitive processes” (Randi et al., 2010). This is important considering that more than 65% of children with ASD with assessable reading skills

have difficulties with comprehension (Nation et al., 2006). Adding to the challenge ASD students face in attempting to read narrative texts for understanding is the difficulty instructors face in adapting lessons to help ASD students develop comprehension skills. While instructors have some resources available to them to help with the adaptation of typical reading goals for ASD learners, many times the ASD reader is left unable to make significant improvements in their reading comprehension skills because of the challenges they face.

What I would like to examine in this thesis is an alternate way of introducing literature to ASD students in the Language Arts classroom. By considering traditional literature featuring prominent ASD characters, as well as graphic novels also presenting ASD characters, we can look at how each contributes to the opportunity for ASD students to see themselves mirrored in the literary works. Where traditional literature is obviously widely accepted in the classroom, graphic novels are gaining traction in the same setting. With a growing number of young adult graphic novels becoming available to teachers and students there is great opportunity for teachers to tap into this alternative literary option in order to encourage ASD learners (as well as neurotypical learners) as they work to strengthen their comprehension skills of narrative texts. Giving detailed consideration to how ASD characters are presented in traditional literature, juxtaposed with the representation of this group in graphic novels, I would like to consider how graphic novels might be used to not only present ASD students with a mirrored representation of themselves within the literature, but to also present these students with an opportunity to develop comprehension skills through the introduction of a visual literary medium.

The two particular works that are the focus of this thesis are Madeleine L'Engle's classic intermediate novel *A Wrinkle in Time*, and Hope Larson's *A Wrinkle in Time: The Graphic Novel*. Comparing the original text version of L'Engle's *A Wrinkle in Time* with its visual

adaptation supports a positive representation of ASD characters in literature and helps strengthen reading comprehension skills in ASD students when reading narrative texts. This thesis will provide an analysis of both the traditional written novel and its graphic novel adaptation, as well as explore the ways these two texts can benefit ASD students in the Language Arts classroom. I will provide a literary analysis of L'Engle's original novel and Larson's adaptation that brings awareness to the way autism is presented in literature. As an educator and the parent of a child with ASD, I recognize the need for a literary focus in the Language Arts classroom on literature that provides a positive representation of children on the spectrum. Drawing on medical research of ASD, comics scholarship, and comments from online contributors to the conversation on autism as well as graphic novels, I will show the necessity for an analysis of how ASD is represented in literature. I will also show how these two texts work to address the needs of students affected by autism. While not a traditional literary analysis, my discussion of L'Engle and Larson's versions of *A Wrinkle in Time* as an opportunity to represent and support ASD readers will open up future conversations regarding existing literature that can be used to address autism in the classroom.

Originally published in 1962, L'Engle's novel has stood the test of time and can still be found in upper elementary and middle school classrooms today. Larson's graphic adaptation of the original novel was published in 2012. When asked in a 2015 interview published on *The Mary Sue* why she kept coming back to this particular story after 50 years, Larson responded: "It's one of the first books I read as a kid that tackled big, dark ideas. It's full of weird images. And Meg, this imperfect girl who's weird and bad in school and thinks she's ugly, gets to travel across the universe and become a hero. It gives so much hope to awkward kids and outsiders" (Maggs, 2015). In addition to the

longevity of L'Engle's novel in Language Arts classrooms these texts are readily available to educators, support positive representations of ASD in literature, and by considering the two texts together, readers have the opportunity to further develop the narrative reading comprehension of autistic students through the direct comparison of a written text and a visual representation of one literary classic.

In this essay, I first examine the character of Charles Wallace in L'Engle's original novel as a possible autistic character. I also consider how Charles Wallace's representation of a child with autism provides readers with a positive representation of ASD. Then, I provide an analysis of Larson's graphic adaptation, explaining how the unique features of this medium could potentially help autistic readers understand the narrative by supporting the development of reading comprehension skills in all students. Finally, by providing a literary analysis of L'Engle and Larson's texts I will discuss how this thesis can initiate further conversation regarding how considering multiple modes of literary medium, such as traditional texts and graphic novels, can be used to present positive representations of autism and support for reading comprehension skills for ASD students.

Chapter 1: Madeleine L'Engle's *A Wrinkle in Time*

Often introduced in late elementary and middle school Language Arts classes, *A Wrinkle in Time* by Madeline L'Engle is a classic novel that has stood the test of time and continues to delight readers today. The text and supplemental teaching materials are widely available for teachers, making this novel easily accessible and an ideal choice for Language Arts teachers to use in their classroom. The novel's protagonist is Meg Murry, a socially awkward, and insecure teenager who is struggling at school and in life after the disappearance of her father. The novel tells the story of the adventure on which Meg embarks along with her younger brother Charles Wallace and her classmate Calvin O'Keefe. The adventure begins with the unexpected arrival of the eccentric Mrs. Whatsit late one night at the Murry house. Her visit takes an unexpected turn when Mrs. Whatsit reassures Meg's mother, Mrs. Murry that she is correct in her assumption that the subject of her scientific studies, the tesseract, really does exist. Readers later find out that the tesseract, or the act of "tessering" is a wrinkle in space and time that allows individuals to travel between planets across a "wrinkle." Meg, Calvin, Charles Wallace, and Mrs. Whatsit tesser themselves in an effort to search for Meg's missing father, whom they believe is stuck somewhere in the fifth dimension after his own attempt at tessering between planets.

After a visit to Mrs. Whatsit's house, Meg and Charles Wallace, along with Meg's classmate Calvin, meet two additional Mrs., Mrs. Who, and Mrs. Which. The three Mrs.' explain to the children that there are places in the universe being threatened by an evil presence called "the dark thing." The children along with the three women then tesser to a planet called Camazotz. Camazotz has been overtaken by the evil dark thing and is also where the three Mrs. believe Mr. Murry is being held captive.

As they search for their father on Camazotz, the children eventually discover that it is under the control of a body-less brain simply referred to as IT. The children encounter a proxy figure who is called “the man with red eyes” at an operating center on Camazotz referred to as the CENTRAL Central Intelligence Center. Charles Wallace believes that he must fully understand the man with red eyes in order to defeat IT, so he willingly succumbs to the man’s hypnotic ways. IT gains control of Charles Wallace then leads Meg and Calvin to where Mr. Murry is being held captive. With the help of a very special set of glasses gifted to Meg earlier by Mrs. Who, Meg is able to free her father from his prison at the CENTRAL Central Intelligence Center on Camazotz.

Meg and Calvin narrowly escape succumbing to the hypnotic power of IT when the newly rescued Mr. Murry tesser them to a new planet, Ixchel. Mr. Murry’s limited tessering skills take a toll on Meg, so she requires the care of the unique creatures inhabiting the planet. Having once again encountered the three Mrs. on this strange new planet, Meg realizes that she alone can save Charles Wallace from IT’s clutches. She returns to Camazotz to rescue her younger brother, armed only with the gifts granted her by Mrs. Whatsit, Mrs. Who, and Mrs. Which to rescue her younger brother. Meg focuses on the love that Calvin and the Mrs. bestowed upon her and uses her love for her younger brother to release Charles Wallace from IT’s clutches. The Mrs.’ tesser the pair back to their own backyard. Calvin and Mr. Murry also safely return to the Murry backyard where Mrs. Murry reunites with her long-lost husband, thus providing a positive outcome for the entire Murry family.

A Wrinkle in Time is an excellent medium for the introduction of a “mirror” for students with ASD as well as neurotypical students, who can see a neurodiverse character through the window the novel provides. Students on the spectrum can discover characters similar to

themselves, which can encourage a deeper connection with the story as well as motivate students when they are asked to tackle learning objectives based on the literature. The need for relatable ASD characters within narrative texts continues to be an important issue considering the rising number of individuals diagnosed as on the spectrum. In recent years, more and more works featuring autistic characters have been published, even giving rise to the new genre of “aut lit,” short for autism literature (Levin, 2017). *A Wrinkle in Time* is an appropriate text when considering works of fiction that appeal to those readers with ASD because of L’Engle’s depiction of Charles Wallace. The young boy, who overcomes the hypnotic pull of IT and tesser between planets with ease, provides an honest and positive portrayal of a child with ASD.

With an increasing percentage of the American student population who qualify for special education services because of the Individuals with Disabilities Education Act (IDEA) it is of great importance that classroom materials provide honest portrayals of individuals with disabilities. These portrayals encourage understanding and acceptance by individuals who are personally affected by disabilities as well as those who are not. (Irwin & Moeller, 2010). So, when introducing literature, it is important that teachers understand who their students are, along with the challenges each individual student may face, because “...it is vital to consider who they meet in literature” (Johnson, Koss, & Martinez, 2018). Positive representations of ASD in literature such as “aut lit” is important because the way we write about autism affects the way the ASD populations thinks about themselves as well as how neurotypical individuals perceive the behaviors of autistic individuals. Likewise, if we consider Charles Wallace as an individual with ASD then this novel can provide a “window” for neurotypical students, and a “mirror” for those personally affected by the disorder as Bishop stressed was so important almost thirty years ago.

Many works of autism literature available to students today feature an ASD protagonist who possesses savant skills. The increased material is arguably a blessing for ASD learners however, the number of autistic savants has long been estimated to be only ten percent of autistic individuals (Rimland & Fein, 1988). While that number seems large compared to the estimated one percent of individuals with savant like abilities within the general population, it is still not representative of the majority of ASD learners who are expected to connect with the material. Therefore, a good deal of the literary and alternative medium involving ASD characters is not an adequate representation of the individuals meant to identify with the material. While the savant abilities present the ASD character in an exceptional light, the characters' other ASD qualities are not viewed as worthy of celebration. While it could be the case that authors desire to put a positive spin on ASD by creating characters with a sensational skill such as savant like abilities, the result is less than positive for the ASD character. Rather than operating as a "window" into the life of a person with autism, or a "mirror" for those diagnosed as autistic, the result is often a negative reflection on ASD as a whole. As explained by Sonya Loftis in her book *Imagining Autism*, "While the fantasy of savantism as compensation cure may make autism "safe" or appealing for the majority of nondisabled audience, it forwards largely negative stereotypes for individuals on the spectrum" (Loftis, 2015, p. 18). However, there is a definite need for students with autism to see themselves accurately mirrored within literature. Despite a focus in the text on Charles Wallace's advanced intelligence, I believe he provides ASD readers with an accurate representation of autism within a classroom text.

As ASD becomes more widely recognized and autism awareness continues to spread, some groups of readers have begun to consider whether Charles Wallace himself falls on the autism spectrum. While there don't appear to be any scholarly articles arguing that Charles

Wallace has autism, there is significant chatter on different forums on the internet regarding the character. On her website, Summer Kinard, a mom of multiple children diagnosed with ASD, describes how Mrs. Murry's calm acceptance of her young son despite his differences helped her better respond to her own ASD children. Kinard states "There is a better way to talk about parenting autistic children, and that way is modeled in the bedrock of love and acceptance in *A Wrinkle in Time*" (2018). In a different article titled "Everyone in *A Wrinkle in Time* is Autistic, and That's Awesome," Sophie Katz considers characters from the story as they are represented in the original novel and Ava DuVernay's 2018 movie adaptation of the story. She describes Charles Wallace's above average intelligence along with his "uncompromising morals" as reasons she thought Charles Wallace has autism. Admittedly, my own experiences raising a child on the spectrum who is similar in age to the young Charles Wallace definitely sways my perception of this character and the argument that he could be classified as having ASD. However, I also believe that my own experiences give some validity to the argument that the young Charles Wallace presents with ASD symptoms because of my firsthand knowledge.

While reader opinion and my own personal experiences with my son's autism diagnosis are important aspects of the argument that Charles Wallace is affected by ASD, it is also important to consider the perspective of the novel's author. There is no doubt that L'Engle included many details inspired by her own personal life in her writing. Her granddaughters, Charlotte Voiklis and Lena Roy wrote in their biography *Becoming Madeleine* that L'Engle's stories "felt like Gran" (Voiklis & Roy, 2018, p. 3). They explain regarding their grandmother's writing "As we read more and more of her books, and heard more and more of her own personal stories, we began to see how connected they were...Many of her own characteristics were given to Meg in *A Wrinkle in Time*" (p. 56). The co-authors even spoke about their own star-watching

rock near L'Engle's home in Goshen, Connecticut similar to that in the Murry's yard in the author's award-winning novel. L'Engle's similarities to the awkward yet relatable Meg extend even further to Madeleine's own mother. Referred to as "Mado" in *Becoming Madeleine*, she is described as considering herself an ugly duckling. Madeleine also employed the use of family names in her novels. In naming the young Charles Wallace, L'Engle used the first names of both her own father, Charles Wadsworth Camp, and her father-in-law, Wallace Collin Franklin.

The author's connection to her stories also extended to her world views. L'Engle's granddaughters point to a diary entry written by Madeleine after the birth of her daughter, Josephine. Madeleine worried about the Cold War and mused that even her religious beliefs "wouldn't change the terror of the powers of darkness" (p. 126). L'Engle would listen to the radio everyday while "chattering to Jo" as a means to distract her young child from the news being delivered. The negativity in the world including the threat of nuclear war caused L'Engle to write in such a way that "...no matter how tragic or sordid the events the reader should be left at the end with a feeling of elevation" (p. 126). As Charlotte and Lena explain it, L'Engle as a writer saw stories as a way to transform both the reader and the main characters and, of her stories, "she did not want them to end in tragedy" (p. 125). Given L'Engle's habit of using family members as inspiration for characters in her stories, it is not hard to imagine that her journals from 1952 regarding the "power of darkness" of the Cold War appear to influence her initial writing process of *A Wrinkle in Time*. A journal entry highlighted in *Becoming Madeleine* shows the author's early conceptualization of the "tesseract" that would become a main concept in *A Wrinkle in Time*. Although a draft of the novel wasn't completed until 1960 it is clear that the news of the time had a particular effect on L'Engle's famous novel (p. 139).

While *Becoming Madeline* highlighted L'Engle's fear of the Cold War, it also reveals telling similarities between Charles Wallace and L'Engle herself. L'Engle wrote in her journals about being "much too shy" and how she either talked "too little or too much" (p. 54), expressing characteristics similar to Charles Wallace. L'Engle also wrote in her own personal musings "Please give me genius" so that she would be sure to succeed as a poet, author, and as an artist (p. 55). Given Meg's success in mathematics, yet awkwardness with her peers, and Charles Wallace's way with words, it appears that L'Engle empowered her characters with both her perceived flaws, as well as her successes given the positive outcome of Meg and Charles Wallace's journey across planets. L'Engle also understood the role of the reader when it came to her stories. She wrote of the readers of her stories "They put things into it that you never thought of" (p. 99). L'Engle not only recognized that the reader was influential over the ideas contained within her story, but she also recognized the reflection of her characters that readers might see stating "...both children and adults were able to see themselves in the main character" (p. 151). L'Engle understood that her readers might also see themselves as different and her characters reflect those differences in a way that is relatable to many individuals.

Given L'Engle's conscious inclusion of characters with unique personalities such as her own, the likeness to an individual with autism, while not explicitly stated, is plausible. As Charlotte and Lena explain of their grandmother, "she writes with subtlety and in realizing her characters, she suggests rather than explains" (p. 116). Rather than explicitly state that Charles Wallace is developmentally different from his siblings, L'Engle's description of his personality suggests there is something unique about him. While L'Engle may not have explicitly known about autism when creating the characters in *A Wrinkle in Time*, considering its slow emergence in the early 1940s from authors like Leo Kanner and Hans Asperger, her understanding of the

need to represent characters with unique and diverse personalities in a positive light is clear in many of her characters, including Charles Wallace. L'Engle also made known the fact that Albert Einstein, who is often considered to be autistic, was a great inspiration to her when writing *A Wrinkle in Time*. In an interview with scholastic students L'Engle responded to a question about how she got her idea for the novel. She stated "It was my discovery of particle physics and quantum mechanics...In 1942, I started reading about Einstein. I picked up a book about him – I don't know why" ("Madeleine L'Engle Interview Transcript", n.d.). A book chapter regarding Einstein featured in the Washington Post cited a response Einstein gave to Carl Seelig, Einstein's biographer, in 1954 regarding his delayed start. Einstein stated "My parents were worried because I started to talk comparatively late, and they consulted a doctor because of it. I cannot tell you how old I was at the time, but certainly not younger than three" (Brian, 1996). Considering L'Engle's knowledge of Einstein, perhaps she found inspiration for the young Charles Wallace along with the idea of the tesseract, from the physicist.

L'Engle does not intentionally highlight Charles Wallace's autism-like tendencies in the same way that some autism literature features an autistic main or supporting character. Loftis describes how many of the autistic representations we see in literature show a character with ASD as "figured as alien, represented as mystery, cast as outsider" (Loftis, 2015, p. 19) when explaining the problematic way characters with autism are portrayed. While L'Engle highlights some of Charles Wallace's differences, the misunderstood boy presented in *A Wrinkle in Time* is an integral part of Meg, Calvin, and Charles Wallace's defeat of IT. L'Engle's focus on how the flaws of all of her characters were crucial to the success of a life-saving mission across planets makes *A Wrinkle in Time* a timeless novel presenting a positive representation of neurodiversity.

The main argument for an autistic Charles Wallace typically points to his seemingly odd behavior throughout the book. The perception of individuals outside of the Murry family is of Charles Wallace as unintelligent: early in the book Meg is involved in a fight after a boy from her school refers to Charles Wallace as Meg's "dumb baby brother" (L'Engle, 1962, p. 12). Even Charles' older brothers, Sandy and Dennys are aware of the public's perception of their little brother. Dennys explains that while he and the rest of his family know how intelligent Charles Wallace is, he is concerned because of Charles tendency to act 'funny' around others who are "so used to thinking he's dumb" (p. 29). People in the town often assumed there was something not quite right about the young boy as he rarely talks to anyone other than his own family. In fact, Meg herself explains that Charles Wallace "...hadn't talked at all until he was almost four" (p. 16). Many sources including the CDC cite delayed speech and language as an early indicator of ASD (CDC, 2019). This symptom of autism has remained consistent since Leo Kanner first declared his findings on ASD in 1943 (Kanner, 1943). The fact that Charles Wallace had delayed language acquisition quickly followed by an advanced vocabulary suggests that he is on the spectrum.

Charles Wallace's advanced vocabulary skills are also consistent with a diagnosis of high functioning autism as these individuals often show above average, or even superior, vocabulary skills (Saulnier & Klin, 2007). Very early in the novel Charles Wallace is found practicing a new vocabulary word that proves far advanced for his young age. Charles Wallace uses the word 'exclusive' and explains "That's my new word for the day. Impressive, isn't it?", to which his mother responds "Prodigious", using another word that should be too advanced for a five-year-old's vocabulary (L'Engle, 1962, p. 18). Charles Wallace's intelligence goes beyond practicing new words and includes a very deep understanding of words that are very advanced for his five

years. The young boy again shows his intelligence when interacting with Calvin. Calvin attempts to explain his previously unexplained need to go to the abandoned house where the Mrs. W's were staying and tells Charles Wallace it's as if he has a "compulsion" to go there. He then asks the young child if he knows what the word compulsion means. Charles Wallace responds by citing the Oxford dictionary definition of the word (p. 37). The ability of a five-year-old child to recite the exact definition of a word could indicate the savant quality of an eidetic memory. Evidence has even been given that suggests declarative memory, or the brains "superstar for learning and memory" seems to be intact in ASD individuals and can even create enhanced memory in those with high functioning autism (Ullman & Pullman, 2015; Boucher & Mayes, 2012). Charles Wallace's advanced vocabulary skills also provide an example of the second general criteria as described by the DSM-5. The young boys focus on, and use of, such an advanced vocabulary at his young age shows a repetitive pattern of interest in the correct definition of vocabulary words (American Psychiatric Association, 2013).

If Charles Wallace's rich vocabulary and ability to recall the exact dictionary definition of individual words is in fact a savant skill then this ability could be viewed as an idealized representation of ASD given that only ten percent of individuals with autism have been shown to have savant abilities (Rimland & Fein, 1988). One concern some individuals have regarding the representation of autistic characters in literature is the idealized version of ASD individuals presented to audiences. In her article regarding aut lit, Donna Levin expresses that many autistic readers object to the negative stereotype that all individuals on the spectrum have some sort of savant-like ability (Levin, 2017). While Charles Wallace could arguably exhibit savant skills, these abilities do not earn him any favor with the characters outside of his family unit. Where many 'aut lit' novels present savant abilities in characters with autism as a trait to be celebrated

or admired, Charles Wallace's advanced abilities are not presented in a way that benefits this unique character. Many individuals outside of the Murry family aren't aware of Charles Wallace's savant-like vocabulary skills because of his perceived deficits in social communication. Charles Wallace's intellectual ability could also be related to his genetic connection to his scientist parents adding to the argument that, should readers consider Charles Wallace through an autism lens, his terrific abilities are not the only thing that make him significant throughout the story. The representation of Charles Wallace's savant abilities may not benefit most readers with autism, but the fact that L'Engle presents the young boy's savant abilities as a challenge makes this novel more relatable to ASD readers when compared with the typical idealized representation of individuals with savant skills.

Charles Wallace' intelligence goes beyond his ability with word recollection. When Meg, Calvin, and Charles Wallace confront the man with the red eyes at the CENTRAL Central Intelligence building, the man attempts to gain control of the young children's minds through some type of hypnotization. All three children are able to resist the man's methodical recitation of the multiplication table as he worked to gain control of their minds. Calvin recited the Gettysburg Address, while Meg cried out for her father. Charles Wallace resisted the hypnotization by reciting children's rhymes, an act that was quite fitting given his young age. When the three children are able to resist the man's attempts at mind control Charles Wallace proclaims, "You didn't really think we were as easy as all that, falling for that old stuff, did you?" (L'Engle, 1962, p. 113). The man responds by insinuating that young children, such as Charles Wallace himself, are typically the easiest to control. Charles Wallace' ability to resist the man with the red eyes just as his older sister does is evidence of his advanced intellectual ability further supporting the idea that the child falls on the ASD spectrum. Yet, it is important to note

that Charles Wallace as a representative of the ASD community was able to defeat attempts at mental manipulation with simple children's rhymes. Savant or not, Charles Wallace is a child on the spectrum who is able to achieve great things beyond his young age, making him an incredible character with whom ASD readers can relate.

Readers gain a glimpse into how Charles Wallace is different when Mrs. Murry and Meg have a conversation regarding him. Mrs. Murry responds to Meg's question about how Charles Wallace seems to know more than most people about the world around them by struggling to describe the young boy before simply explaining "he's different". Meg explains that it's hard for her to understand because her younger brother doesn't look different. The children's mother responds to Meg explaining "...people are more than just the way they look" and goes on to explain "Charles Wallace's difference isn't physical. It's in essence." Meg struggles to accept that she can't truly understand what makes her brother so different. She finally acquiesces when she states, "I'll just have to accept it without understanding it" (p. 48).

While this is obviously not a pronouncement of Charles Wallace's diagnosis as autistic by L'Engle, as a mother of an autistic child, I find it eerily similar to the way I describe my child to those who meet him. He looks "normal", but he is also "something *more*" as Meg explains regarding her younger sibling. Given Leo Kanners paper in 1943 and the increased public conversations regarding autism thereafter, the author's knowledge of Einstein's own speech delays, and the fact that L'Engle was a new mom herself in 1947, it's plausible to consider that L'Engle may have had some background knowledge of autism and other developmental disorders when writing her novel. Although there is no clear evidence regarding what L'Engle knew about developmental disorders when she was creating Charles Wallace's character, the depiction of the young boy's transition from seemingly nonverbal to enhanced intelligence surely

fits the description of at least some autistic children. The language that Meg's mother uses to describe Charles Wallace is also telling: while calming Meg's concerns about her intelligence, Mr. Murry also calmly accepts Charles Wallace' neurodevelopmental differences. Meg's parents draw parallels between Meg and her young brother. When Meg describes herself as dumb to her father, he explains that Meg is not dumb. He goes on to explain "You're like Charles Wallace. Your development has to go at its own pace. It just doesn't happen to be the usual pace" (p. 16). Meg's unique connection to her younger brother also provides an opportunity for readers to consider the family dynamics of siblings affected by autism, and could additionally allow students to "go through the sliding glass door" and discuss the implications of Meg and Charles Wallace's unique relationship (Bishop, 1990).

In the sequel to *A Wrinkle in Time, A Wind in the Door*, Mrs. Murry explains to Meg that "Charles Wallace is going to have to live in a world made up of people who don't think at all in any of the ways that he does, and the sooner he starts learning to get along with them, the better" (L'Engle, 1978, p. 33). Mrs. Murry implies that it is necessary for Charles Wallace to change his behavior and overcome his social awkwardness to fit in with his neurotypical peers, as is the case for many ASD individuals who often turn to various therapies in order to learn how to behave within societal norms. For example, Autism centers of Michigan defines Applied Behavioral Analysis, or ABA therapy, as "the application of scientifically validated behavioral principles to achieve performance that is socially significant." There is some controversy surrounding the effectiveness of ABA therapy as well as whether it is essentially encouraging individuals with autism to learn to exist in a neurotypical world. From my experience navigating ABA therapy with my own son, I have found that those who are against this intervention feel that individuals on the spectrum should not have to conform to a neurotypical set of social standards, but rather

the world should accept those on the spectrum as they are. Mrs. Murry seems to realize that the world won't easily accept Charles Wallace's social and intellectual differences. Regardless of the challenges Charles Wallace faces because of his differences, L'Engle uses the young boy to help defeat the powerful IT. Just as Mrs. Whatsit gives Meg the "gift" of her faults to help her rescue her father (L'Engle, 1962, p. 94), Charles Wallace's faults are what help him on the same quest. Through this unique representation L'Engle encourages readers to consider that what are looked at as faults by our fellow humans may actually be beneficial to us if we look beyond our present circumstances. Charles Wallace's autistic traits are what define him according to other humans, but they also help present him as an ASD hero throughout the course of this story.

The lasting status of *A Wrinkle in Time* in various classrooms combined with Charles Wallace as an ASD character make this novel an excellent choice as an option when attempting to engage ASD readers in the classroom. However, as with any literary work, there are many ways in which this book could present challenges for this unique subset of learners. *A Wrinkle in Time* requires readers to contribute to the story through their own imagination. Being able to visualize the events as they occur is crucial for comprehending the novel. Readers bring their own experiences and understanding from the world and incorporate those experiences with the information they take from the text in order to create meaning. The reason students have for reading a particular text combined with their learning abilities affect their comprehension of what they are reading (NCTE, 2005). Additionally, ASD students typically struggle with comprehension of information as well as making inferences when the information given isn't factual (Saldana & Frith, 2007). Given these challenges, the inability for ASD learners to understand abstract concepts could inhibit them from fully comprehending texts with unfamiliar ideas such as *A Wrinkle in Time*.

For example, one very abstract concept in *A Wrinkle in Time* is the “tesseract”, or the act of tessering. Readers observe the Mrs. W’s along with Mr. Murry, Calvin, Meg, and Charles Wallace tesser several times throughout the story. Readers are also introduced to a variety of emotions from the characters in this scene making this abstract idea even more complex. The idea of tessering is first introduced at the end of chapter 1. As Mrs. Whatsit readies herself to go back out into the unpleasant weather and find her way home, she off-handedly tells Mrs. Murry that “...there *is* such a thing as a tesseract” (L’Engle, 1962, p. 26). Mrs. Murry appears to have a visceral response to Mrs. Whatsit’s revelation about the existence of something she and her husband had been working to understand prior to his disappearance. Readers see Mrs. Murry go “very white” as she “reached back and clutched at a chair for support”, and Mrs. Murry’s voice is described as trembling (p. 26). Not only are readers being introduced to a brand new and fictional concept, tessering, with which they are not familiar, students must also understand Mrs. Murry’s emotional reaction to this subject. This is a complex process for all students and poses additional challenges to students with ASD.

As the chapter ends Meg shows concern over her mother’s reaction and Mrs. Murry again expresses her confusion over how a stranger could know about the tesseract, a concept only Mr. and Mrs. Murry contemplated through their private studies (p. 27). A combination of issues are occurring for readers as they work through this complicated scene. One possible reason for these challenges could be due to “weak central coherence” which many researchers often agree is a challenge for autistic students. ASD students’ ability to focus on details makes it difficult for them to understand the text as a whole (Happé & Frith, 2007). Thus, the ability for ASD students to understand the abstract idea of tessering along with the many emotions presented in this scene is diminished. However, additional research indicates “it is possible to teach children with ASDs

to capitalize on their strengths, such as their attention to detail, and to use well-developed skills to accomplish tasks that call for skills that are otherwise lacking” (Randi et al., 2010).

Additionally, impairments in abstract reasoning have been said to be a potential cause of reading comprehension deficits for students (Randi et al, 2010) and could pose problems especially for ASD students as they are introduced to the tesseract. Given the complexity of a scene such as this one and the deficiencies ASD students face, it is safe to say this continued confusion from Mrs. Murry combined with Meg’s added emotions could potentially create a challenging scene for students on the spectrum as they attempt to create meaning from the story.

While Mrs. Murry’s emotional response to finding out her research regarding the tesseract was in fact true was challenging to understand, readers haven’t even been introduced to the actual act of tessering yet. Readers experience the act of tessering for the first time at the beginning of Chapter 4 in *A Wrinkle in Time*. Mrs. Whatsit, Mrs. Who, and Mrs. Which tesser along with Meg, Calvin, and Charles Wallace with the goal of rescuing Mr. Murry. While it seems that most of this group of individuals can tesser with little difficulty, the same cannot be said for Meg. Readers encounter a terrified Meg as she “screamed and clutched at Calvin” who had been holding her hand upon their departure. As Meg narrates her experience while tessering she explains that she felt completely alone and even wonders at one point if she is in fact having a nightmare (L’Engle, 1962, pp. 56-57). Meg is also the last to arrive at the destination intended by the Mrs. W’s after this first description of tessering as Charles Wallace asks Calvin where Meg is, and as Calvin looks around himself “wildly” searching for his new friend (p. 58). Once Meg finally re-emerges, she is greeted with a hug from her younger brother. While there is a sense of fear presented when Calvin and Charles Wallace cannot immediately locate Meg after tessering, the scene quickly switches to a different emotion. Meg looks around herself observing

the beauty of the fields, flowers, and mountains that surround her in the strange new land where the Mrs. Ws took the children. Also, during this time Mrs. Whatsit and Mrs. Who begin laughing as if at a private joke (p. 59). Charles Wallace does not find their humor during such a tense moment very funny and scolds the women for how much they scared Meg during the process of tessering from one world to another. Over the course of two short pages readers are introduced to fear, awe, humor, and anger from the characters in the story. While this emotionally charged scene could be difficult for any Language Arts student, the emotional deficits ASD students face make comprehending the complexity of this scene particularly challenging. One reason for these challenges could be problems with emotional dysregulation which is often an issue for people with ASD. Emotional dysregulation is defined as “an impoverished ability to cope with and control intense, especially negative, emotions” (White, Mazefsky, Dichter, Chiu, Richey, & Ollendick, 2014). While not considered one of the core deficits in individuals with ASD emotional dysregulation has been shown to be connected to all the core features of autism (Samson, Phillips, Parker, Shah, Gross, & Yarman, 2014). The emotional dysregulation many ASD individuals face could affect their ability to comprehend the significance of Mrs. Murry’s strong emotional reaction upon hearing Mrs. Whatsit’s declaration regarding the existence of the tesseract. Because emotional dysregulation also affects how students cope with negative emotions (White et al., 2014) teachers may need to take even greater care when presenting scenes such as this to the class.

In addition to challenges students may face when presented with the emotions of the characters as they tesser, asking a student to make personal connections to aid comprehension of the concept of tessering is a near impossible task given the abstract idea of travelling between worlds in such a short amount of time. L’Engle seems to recognize that this Einstein-inspired

idea will be difficult to understand because she uses character descriptions, and most tellingly, images, to help explain the concept. Mrs. Whatsit tries to explain that tessering is difficult for Meg, Calvin, and Charles Wallace to understand because where they are from the words do not exist to explain the process (L'Engle, 1962, p. 73). Mrs. Whatsit continues her attempts to explain the tesseract by equating the act of tessering to an actual “wrinkle” in time. Mrs. Who also joins the attempts to educate the children on what it means to tesser by using her skirt to demonstrate a literal wrinkle in time. Using Mrs. Who’s skirt as a visual guide Mrs. Whatsit describes the abstract concept of tessering by explaining that a small insect travelling over a taut line would take a long time to traverse the distance, but if the skirt were folded and the two sides brought together the insect could cross to the other end of the fabric rather quickly (p. 73). L'Engle also includes a visual depiction in the novel of an ant travelling along a string when it is pulled taut as well as when the string is folded in half as seen in figure 1.

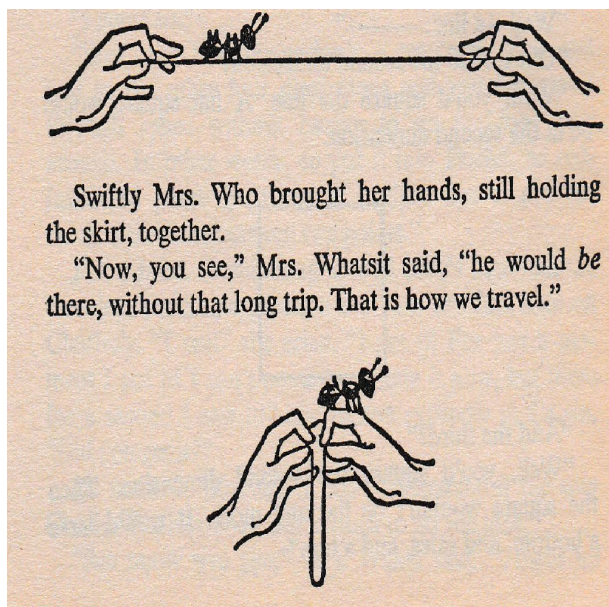


Figure 1. L'Engle, Madeleine. (1962) *A Wrinkle in Time*, Laurel Leaf Books, p 73.

L'Engle provides two images separated by the description of the action narrated by Mrs. Whatsit, which is similar to the comic elements that are found in graphic novels. Mrs. Whatsits

explanation acts as a word bubble, but without the bubble. The images are also separated, not by a frame as they would be in a comic depiction, but by the words of Mrs. Whatsit. This separation allows readers to establish closure between the two images. Following this scene, Mrs. Whatsit goes on to explain to the children that tessering is like travelling in the “fifth dimension” (L’Engle, 1962, p. 74). Meg attempts to understand by following Mrs. Whatsit’s explanation as Meg is asked to consider the first, second, and third dimensions. While Charles Wallace shows confidence in his understanding of the tesseract because of conversations he had with his mother regarding the concept, Meg struggles to understand, stating “I guess I *am* a moron. I just don’t get it” (p. 74). Using Charles Wallace to explain the concept, L’Engle describes the first three dimensions as a line, a square, then a cube, and includes additional images to aid Charles Wallace’s explanation. L’Engle’s inclusion of visual depictions of the tesseract allows readers to visually experience the abstract concept.

L’Engle seems to have realized that her Einstein-inspired idea would be difficult for readers to understand. The author portrays the misunderstanding she knows her readers will experience through Meg’s confusion. By including the protagonist’s confusion and images to aid the description of the challenging concept, L’Engle acknowledges to readers that the abstract nature of tessering is challenging for most individuals to understand, and she supports readers ability to make sense of the idea much like a graphic novel does through the combination of images and words. L’Engle’s inclusion of images to support text directly relates to my argument that Hope Larson’s graphic adaptation of *A Wrinkle in Time* provides continual visual support to all readers as they attempt to comprehend abstract concepts such as tessering.

There are additional abstract ideas within *A Wrinkle in Time* that could be challenging for neurotypical and autistic readers alike. One such example is Mrs. Whatsit’s change in form on

the planet Uriel from her “plump little body” into “something like a horse, but at the same time completely unlike a horse.” The female Mrs. Whatsit changed into a creature with “a head resembling a man’s, but a man with a perfection of dignity and virtue, an exaltation of joy such as Meg had never before seen” (p. 63). Included in this description are several words that students must understand enough to be able to provide a definition, as well as the feeling of joy used to describe a physical being that defies any accurate description a human can provide. L’Engle attempts to use recognizable and easily relatable things, such as “something like a horse,” to help describe Mrs. Whatsit’s transformation, but then she immediately says that it’s nothing like a horse at all. For ASD learners who struggle with inflexible or concrete thought, one of the core features of ASD as described in the DSM-5 (American Psychiatric Association, 2013), this description may be hard to understand. In his book *Seeing the Spectrum*, Robert Rozema describes several factors that may cause challenges for ASD students when reading literature, including for concrete thinkers. He writes that “symbolic representation is particularly challenging for concrete thinkers who struggle with abstraction, a common issue among autistic individuals” (2018). Rozema cites the well-known autistic author Temple Grandin’s personal struggle with abstract thought and how the author needed to convert abstract ideas such as the Lord’s Prayer, into pictures (Grandin, 1995). Thus, asking an ASD student to comprehend, and maybe even visualize something like a horse, but not really like a horse could potentially cause problems for these students. Similarly, L’Engle’s description of Mrs. Whatsit’s change describes the woman’s head as like a man’s head, “but a man with a perfection of dignity and virtue, an exaltation of joy” (L’Engle, 1962, p. 63), is challenging to understand. L’Engle uses emotion to describe an image creating even more confusing content for ASD readers to process and comprehend. Regardless of what deficit ASD readers experience that affects their comprehension

skills, the abstract ideas contained within the pages of *A Wrinkle in Time* such as Mrs. Whatsits change could pose a significant challenge to neurodiverse as well as neurotypical readers.

In addition to Mrs. Whatsit's transformation, readers also encounter another creature who is said to be beyond imagination. After rescuing Mr. Murry from his enclosure at the CENTRAL Central Intelligence Building on Camazotz, Meg's father makes the decision to use his limited tessering skills to tesser himself along with Meg and Calvin away from the IT-controlled Charles Wallace. Meg's experience during this tesser appears to be her worst yet and she wakes up frozen and in extreme pain after tessering through the "Black thing" (p. 154). Mr. Murry has tessered the trio to the planet Ixchel where they encounter what they describe as "beasts" (p. 158). The creatures are described as being a "dull gray" color with four arms and many "long waving tentacles" where the fingers should have been, as well as tentacles rather than hair (p. 159). Perhaps the strangest attributes of these creatures are the fact that they simply had indentations on their face where typical facial features would have been. As one beast begins to tend to Meg, the young girl decides to refer to it as Aunt Beast. While the beasts form is difficult, but not impossible to imagination, these creatures differ from humans in such a way that readers may find challenging to understand, once again presenting readers with a very abstract idea to comprehend. Even with prior knowledge of the human body to which L'Engle compares these unique creatures, the Beasts of Ixchel are hard to imagine.

One difference highlighted is the lack of sight in the beasts. In response to Meg's question as to why it is always so dark on Ixchel, Aunt Beast explains that they are not able to see things as humans do and she seems surprised that Meg is so adamant about the greatness of being able to visualize things. Aunt Beast goes on to explain that although they may not know what things *look* like, they "know what things *are* like", and she speculates that Meg's ability to

see things could be limiting to humans (p. 164). This exchange between human Meg and Aunt Beast of Ixchel requires readers to consider the ability to live life with vastly different skills. It also requires critical thinking skills that allow readers to consider what life might be like without sight, or the lack of need for the sun or artificial lighting to go about our day. It could also incite a sense of empathy and understanding for a blind human. Additionally, students might consider how the residents of Ixchel cope so effectively without eyesight.

More importantly, Aunt Beast does not consider lack of vision a handicap as we humans do. In fact, Aunt Beast makes it seem like Meg's ability to see is a handicap. L'Engle's clever creation of the Beasts of Ixchel allow readers the opportunity to consider that something viewed as a disability by one group of beings may be an advantage for others. The author's insight into disability versus advantage also relates to her description of Charles Wallace and the disadvantages he has on planet earth. The qualities he has that others tease him about are an advantage to him as he travels across planets. This concept also allows great opportunity for students who may feel as if their own differences are always looked at negatively, such as those students with ASD. L'Engle's inclusive message could be a great way for teachers to help students see themselves and their own differences reflected in the pages of this novel.

Despite the inclusive lesson L'Engle creates, the description of a creature so abstract as Aunt Beast poses potential issues for all students, and perhaps even more so for students on the spectrum due to the challenges they face when attempting to construct meaning while reading (Randi, et al., 2010). Creating an image of this unknown creature while also understanding Meg's fear and subsequent awe of something she simply cannot understand creates challenging circumstances as ASD and neurotypical students attempt to comprehend the story. This is like the challenge ASD readers may face when attempting to understand such abstract ideas. While

only a small sampling of the complex concepts presented in L'Engle's novel, the potential challenges ASD, as well as neurotypical readers, may face when reading this text provide an opportunity to consider the merits of a companion text such as Hope Larson's graphic adaptation when presenting Madeleine L'Engle's *A Wrinkle in Time* in the Language Arts classroom.

Chapter 2: Hope Larson's *A Wrinkle in Time: The Graphic Novel*

Hope Larson's adaptation of Madeleine L'Engle's Newberry Award winning novel, *A Wrinkle in Time*, was published 50 years after the original. While L'Engle's creation of Charles Wallace was likely influenced by the increased awareness of developmental disabilities such as autism, Hope Larson wrote her adaptation 42 years after autism awareness was first celebrated annually. And, like L'Engle, Larson connected on a personal level with the characters in the novel. She commented "I was an awkward weirdo teen and now I'm an awkward weirdo adult. It's much easier for me to write about lonely, frustrated outcasts than other types of characters" (Borders, 2012). The combination of L'Engle's inclusion of Charles Wallace as integral to the successful outcome of the story, with Larson's general knowledge of autism awareness and her ability to portray the uniqueness of Charles Wallace's character given her own awkwardness, creates a complex graphic adaptation of the novel. Also, the author herself later expressed how she now realizes her novel is a valuable resource to ASD readers. Larson was told about her graphic adaptation being used as content in a class of special needs and autistic kids. The author explained "Apparently it was very helpful for these kids to see the characters emotions visually represented - they were able to understand the characters' emotional states visually in a way that they couldn't when faced with pure prose descriptions of their feelings. It turned out that, in one sense, sight is the key to truly seeing" (Gallucci, 2015). Whether Larson intentionally presented Charles Wallace as having autistic traits or not, reviewers of the novel noticed unique attributes used by the author. One reviewer noted "His unnaturally large eyes make him look just more than human" (Davis, 2012). Larson's modern perspective of L'Engle's classic text brought to life Charles Wallace's character in a way that provides readers with a visual presentation of an autistic character.

The unique structure of the graphic novel can assist ASD readers in a way that typical literature cannot. One study regarding the use of graphic novels to help develop reading comprehension skills determined that

Summarizing previous plot and character details during the graphic novel studies, stopping to predict coming events in the respective stories, and making inferences based on given information in the illustrations as well as in the text were other comprehension strategies supported in, or added to, these young readers reading comprehension repertoires. (Brenna, 2013)

Given the challenges with both reading comprehension and understanding narrative that many ASD readers face when attempting to make sense of a literary text, a graphic adaptation of a literary work could arguably help autistic students improve their understanding. Considering the lack of the ability to process both the complex and abstract ideas presented as well as the range of emotions demonstrated by the characters in Madeleine L'Engle's *A Wrinkle in Time*, adding visual cues could help this unique group of readers better comprehend the literature presented. ASD learners could benefit greatly by allowing them the opportunity to consider texts that include pictures as an integral part of the story.

One argument for the inclusion of graphic novels as a tool to develop reading comprehension skills in ASD students stems from the panel structure of the comics medium. The typical graphic novel follows the top down, left to right reading organization as that of traditional texts, but additional elements exist to guide ASD readers and encourage the development of comprehension skills. These include panel structure and the closure provided by panel layout, frame shape, color scheme, and word bubbles with different border shapes, among others.

Research conducted by Diehl, Benneto, and Young (2006) regarding students with high-functioning autism concluded that autistic children had some recall capabilities of general events in narrative texts, but they struggled when attempting to organize these events in a meaningful and coherent way. Their study concluded that ASD learners would benefit from references to characters in the past to help them improve their knowledge of causative relations (2006). The panel structure of graphic novels helps readers visually reference characters throughout the narrative by including multiple representations of a given character on the same page. The graphic novel can also help ASD students understand the emotions of the characters in a story. Many of the natural design elements of the graphic novel, such as page layout, the use of color, and the shape of individual frames support comprehension for students when reading the graphic adaptation of *A Wrinkle in Time*.

Features such as the shapes and colors of different word balloons, as well as additional visual cues, can also help readers to gain a better understanding of the story, enhancing reader comprehension in the process (McCloud, 1994). The sequential organization provided by the graphic novel format can take a challenging text for ASD readers and provide a built-in framework of design elements to aid those struggling to comprehend the written text. Similar to the process used to understand what we read in text form, such as the individual words, to drawing inferences that may not be clear simply from the text itself, graphic novels include their own built-in structures. Graphic novels include text in word balloons as well as narration boxes that provide pertinent information, and that create built in support for reading comprehension. The format of the graphic novel can encourage students to make inferences as they move panel to panel and fill in the gutters. By considering a text version of a story along with the graphic

novel adaptation, ASD readers have the opportunity to support the comprehension process with the use of a visual aid.

It is important to note that ongoing research regarding graphic novels and reading comprehension skills of ASD learners do not show the visual presentation of text to be a better mode of introducing literature. In 2018, a group of researchers released a study titled “Visual and linguistic narrative comprehension in autism spectrum disorders: Neural evidence for modality-independent impairments”. In this article the researchers ultimately found that “while visual supports may be beneficial...solely relying on visual stimuli to convey complex linguistic information may not completely alleviate comprehension difficulties” (Coderre, Cohn, Slipher, Chernenok, Ledoux, & Gordon, 2018). In other words, the study produced results showing that ASD individuals showed similar comprehension deficits with written narratives and visual narratives. The group of researchers ultimately determined from the results of this study “...comprehension difficulties among individuals with ASD may not solely be related to language ability, but rather may represent more global impairments in understanding narrative sequences” (Coderre, et al., 2018).

These findings are contradictory to many of the studies that support visual supports for reading comprehension (Brenna, 2013; Carter, 2007; Hughes, King, Perkins, & Fuke, 2011) may not be as effective as educators had previously hoped. This could potentially derail the argument for the use of graphic novels as a tool for improving reading comprehension skills in autistic students because of the findings that ASD individuals appear to have comprehension impairments in both written and visual modalities. However, graphic novels may still support reading comprehension skills if used appropriately. More specifically, using the written text along with the graphic novel adaptation of the same written novel can help ASD readers further

develop their reading comprehension skills by a direct comparison of the two texts. This is like the well-known intervention of allowing a student to listen to a recording of a text as they read along to help support a student's ability to comprehend the text presented. Introducing graphic novel adaptations of known texts in addition to their written text counterpart can offer an additional multimodal reading intervention for ASD readers despite evidence showing that these students show reading comprehension deficits when presented with either of these two types of text separately. The introduction of graphic adaptations alongside traditional literary works can effectively help strengthen comprehension skills in ASD students. With the ever-increasing popularity of graphic works the opportunity to implement these side-by-side comparisons is now more accessible than ever.

While the text version of *A Wrinkle in Time* proves to be challenging in various ways, the graphic novel adaptation both illustrated and adapted by Hope Larson offers ASD students an opportunity to consider written text in conjunction with a visual representation of the same story. Larson herself has described her goal of accessibility for her graphic adaptation. In one interview Larson explained "I hope the graphic novel version makes this story accessible to kids who're intimidated by the novel and gives them the confidence to tackle the story in prose next time around" (Maggs, 2015). Perhaps the most notable difference between the two texts is that the graphic novel adaptation offers some layout structures and images that help clarify complex concepts and guide readers through the story. This structure can be beneficial to all students but is especially so for ASD learners who struggle with reading comprehension due to difficulty with executive functioning (Carnahan & Williamson, 2010). One of the design elements readers immediately notice in this graphic adaptation is the limited use of color throughout the novel. With the exception of the front and back covers, the graphic novel is inked using only blue,

white, and black shades. There are no additional colors used throughout the entire novel. This limited palette serves multiple purposes. It allows the reader to follow specific cues as they read through the story. And as Scott McCloud explains, focuses the reader's attention on the story. Combined with a limited color scheme, the simply drawn faces create a "mirror" into the story because the iconic images make it easier for readers to identify with the characters in the story (McCloud, 1994). Larson typically includes only 4-6 small panels on each page, reducing the amount of information autistic readers need to process on each page. In their 2010 study Randi, Newman, and Grigorenko observe that "In addition to memory deficits and poor organization strategies, a tendency to focus on details makes it challenging for readers on the spectrum to connect text in a coherent whole" (2010) making the limited color scheme even more important as it allows ASD readers to focus less on individual details and more on the story itself. An additional argument for the effective use of blue was described in an article titled "Perfect Faults and Inconsistent Communities: Hope Larson's *A Wrinkle in Time*". The author, Joe George, points out that Larson's use of blue throughout the novel echoes the notion that Meg does not need to change who she is in order to find success on her quest (George, 2018). Like the blue background, Meg's character traits, quirks and all, remain consistent throughout the story.

An additional design element using this idea of organizational simplicity is the difference between frames where Meg is shown in the present versus when Meg is remembering events that have already occurred. Where Larson employs the use of white in current scenes, she uses only black and blue in flashback scenes. The use of color in this way presents additional support for ASD students in the way it visually represents the sequence of the story being told. The visual representation of past and present aids readers as they keep track of past and present tense as the story progresses.



Figure 2. Larson, H., and L'Engle, M. (2012), *Madeleine L'Engle's A Wrinkle in Time the Graphic Novel*, Square Fish, p 12.

This use of color can be seen in figure 2. The frame on the left shows Meg in the present thinking back on her experience with the boys, which is shown in the frame on the right.

Larson's use of word bubbles remains relatively consistent with character's spoken words in word bubbles with uneven edges and a "tail" indicating who is associated with the words being spoken. The exception to this use of a standard word bubble can be seen with the characters Mrs. Which and the man with red eyes.



Fig. 3 Larson, p. 100 and 216.

Larson used jagged, pointy edges when she created word bubbles for these two unique characters as seen in figure 3. Mrs. Which speaks in a sort of long, drawn out way denoted by a lot of double letters. For example, her first line in the book is “Alll rrightt girrrlls” (L’Engle, 1962, p. 55) when she scolds the other Mrs. for arguing. The man with red eyes has a voice that is described by Meg as “kind and gentle” (p. 111), but it turns out that the man is not speaking out loud, but directly into their minds. Larson’s use of jagged edged word balloons for these two characters allows readers to recognize the different way these individuals speak. McCloud’s description of the “...ongoing struggle to capture the very essence of sound” (McCloud, 1994, p. 134) explains Larson’s attempts to show the difference between speech patterns readers are typically accustomed to hearing, and the otherworldly voices of Mrs. Which and the man with red eyes, by using a different shape for their word balloons. Also, as in *A Wrinkle in Time*, Meg’s thoughts are denoted by rectangular boxes with straight edges and no tail to indicate a speaker. Larson maintains consistency by using a white background with black letters. The consistency of these design elements adds to the organization of the text within the graphic novel and assists ASD readers with the potential challenges they may face when considering the abstract back and forth of past versus present, and their ability to consider the implications of the emotions experienced by Meg.

This use of color to indicate shifts in time occurs early in Larson’s version of the story. Meg recalls an experience she had earlier in the day as some classmates of hers referred to Charles Wallace as “her dumb baby brother” which led to the fight she had on her way home from school. The frames we see for this scene are all blue with simple black lines creating the pictures. The use of this structure allows readers to quickly recognize that this event is one that happened in the past. The two frames in the center of the page, shown in figure 2, allow readers

to see the image of the two school boys and “hear” their cruel statements about young Charles Wallace as they read the text in the frame, all while the colors used in the frame remind readers that this event is not currently occurring for Meg. This idea is similar to Temple Grandin’s need to add visual representations of abstract thoughts such as the sound of the boy’s laughter.

The very next page in Larson’s novel, shown in figure 4, shows Meg’s response to hearing the verbal attack on her younger sibling. Readers can see Meg’s anger through her body language, facial expression, and the lightning bolt like lines surrounding her head as shown in the first three frames on the page.



Fig. 4, Larson, p 13.

This, coupled with her hand grabbing the collar of the boy’s shirt, as seen in the frame in the upper right-hand corner of figure 4, assists readers as they read Meg’s statement to the boys:

“Just say that again”. Advanced readers who do not struggle with the same deficiencies in reading comprehension that those students with ASD do would immediately recognize that this statement was made by Meg as a threat to the two young boys that she would take her aggression further should they actually say anything else negative about Charles Wallace. But what is clear to an advanced reader without further prompting may not be so easily decoded by a reader who is developing their comprehension skills, especially those students who particularly struggle to use background knowledge to support their comprehension skills such as ASD readers. The combination of color denoting past tense, facial expression, and physical aggression showing Meg’s anger, and the addition of lightning bolts and other visual cues help ASD readers organize their thoughts as they read and visualize the story. By providing a visual organization of all these factors, the graphic novel format helps ASD readers look beyond individual words and adds that visual element to aid comprehension for typically concrete thinkers.

Additional comic elements can be seen looking at this same page if we consider Larson’s use of different color schemes to denote memories versus real time events. If we follow the typical format for reading the graphic novel left-to-right and top-to-bottom, and recognize that the last panel to be read would be the image on the bottom right corner of the page, shown in figure 4, which shows Meg lying in her bed, we can see how Larson’s use of the different color schemes creates a way for readers to understand the timeline of events as they occur. Meg’s memories shown using only blue and black give way to Meg’s present circumstance of lying in bed unable to sleep, which also includes white. This time-keeping element is yet another way in which the graphic novel adaptation of *A Wrinkle in Time* provides a framework for ASD readers as they attempt to navigate and comprehend an imaginative story.

Larson's graphic adaptation provides a structural framework for ASD readers to understand time as the story jumps back and forth between past and present tense. By creating this distinction between frames with blue, black, and white for scenes occurring in the present, and frames washed in blue (and without white) Larson is able to focus readers eyes on each individual frame while subsequently moving the reader between past and present tense (McCloud, 1994). While the framework this creates is beneficial to students as they work toward increased comprehension skills, recent research clearly demonstrates that the difficulties that ASD students face when developing their comprehension skills "may represent more global impairments in understanding narrative sequences" (Coderre, et al., 2018). This makes it important to note that the framework provided by Larson's graphic adaptation is not a stand-alone intervention for developing reading comprehension skills in ASD students because, Coderre and her colleagues go on to conclude, "...solely relying on visual stimuli to convey complex linguistic information may not completely alleviate comprehension difficulties" (2018). Rather, teachers can encourage students to consider L'Engle's original text that Larson includes throughout her adaptation in order to create an organized intervention that is helpful to ASD students as they navigate the text.

Another aspect of the graphic adaptation of *A Wrinkle in Time* that helps ASD readers not only navigate through, but also connect with the story, is the presentation of Charles Wallace. As discussed in the review of the text version of this novel, Charles Wallace exhibits some of the characteristics of an individual on the autism spectrum. Because L'Engle never states this explicitly in the original novel, how the young boy is represented in the text is of great significance. While his extreme intelligence, along with his refusal to talk to anyone other than his family and the three Mrs. W's could be classified as expressions of an autistic character, they

are not the only indicators that Charles Wallace operates differently than the average individual. Another aspect of Charles Wallace's differences, not previously mentioned, could arguably be his unwavering sense of right and wrong as seen when Charles Wallace chides Mrs. Whatsit for stealing Mrs. Buncombe's sheets early in the novel.

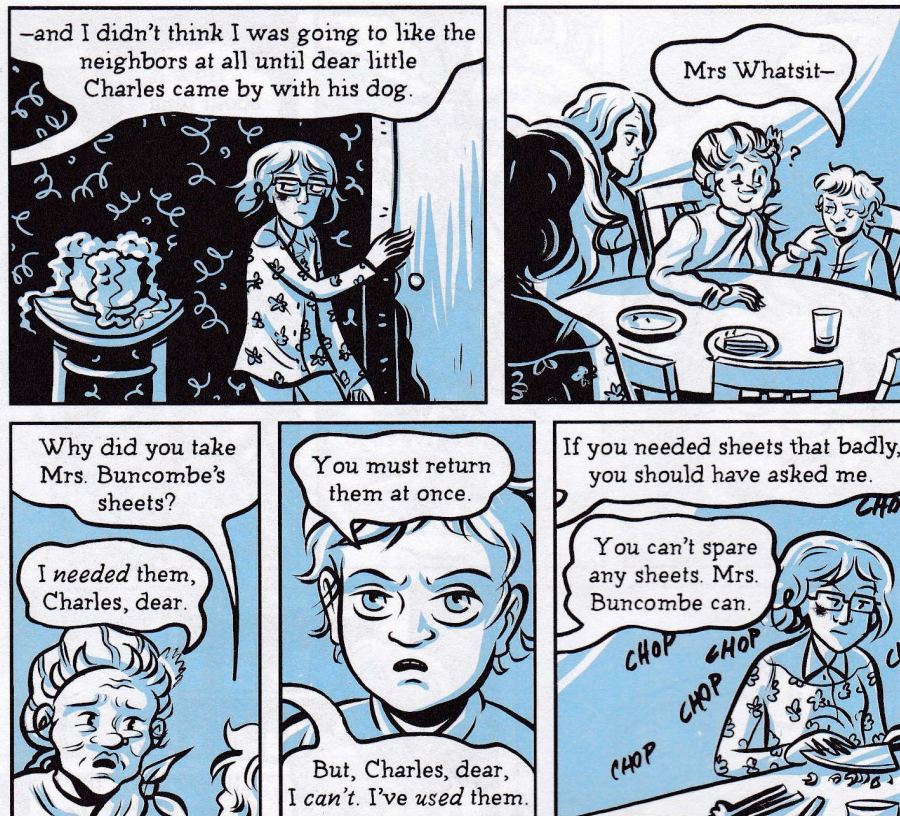


Fig. 5, Larson, p. 32.

In Figure 5, we see Charles Wallace display a moral rigidity that fits within the DSM-5 description of ASD individuals who exhibit restricted, repetitive patterns of behavior, interests, or activities. Long referred to as an impairment in “abstract attitude” (Scheerer, Rothmann, and Goldstein, 1945), the rigidity Charles Wallace shows toward Mrs. Whatsit's moral indiscretion involving Mrs. Buncombe's sheets provides further evidence of the fact that Charles Wallace shows signs of autism in *A Wrinkle in Time*. The focus on Charles Wallace's look of disapproval remains consistent in the frames in which he appears. By interjecting images of Charles

Wallace's disapproving face throughout this scene the images as a whole have a "single overriding identity" (McCloud, 1994, p. 73) that is focused on Charles Wallace's reaction to Mrs. Whatsit's indiscretion. Charles Wallace's moral abstraction is not a negative trait in the context of the novel though. The boy's rigid moral attitude eventually helps him overpower IT's attempts to make the young boy see that sameness is the only way for people to be content. What is often referred to as a handicap for individuals with ASD is shown to be a strength for the young Charles Wallace as he embarks on his journey through space and time. L'Engle also celebrates differences as strengths in using Charles Wallace's unique traits to defeat IT's attempts to squash all differences in people.

Larson's graphic novel adaptation allows readers to consider the images in more detail as they read through the text. Readers bear witness to Charles Wallace's indignation over things Mrs. Whatsit is trying to do from which his moral compass won't allow him to waver. Charles Wallace facial expression shows his disapproval when he tells Mrs. Whatsit "You must return them at once" regarding the stolen sheets (Larson, 1962, p. 32) shown in figure 5. Larson also draws Charles Wallace with a clearly stern and disapproving look on a previous page when he exclaims "No!" upon Mrs. Whatsit's request for the caviar that was being saved (p. 31). This scene also includes an image of Mrs. Whatsit that shows her looking sad and includes a word bubble with a long, drawn out "siiiigh" coming from the woman. Charles Wallace's facial expressions communicate his emotions clearly, with no ambiguity. And, the inability for Charles Wallace to understand Mrs. Whatsit's explanation, combined with the visual images, create a visual representation of the young boy's moral rigidity. These visual representations of Charles Wallace's physical reactions as well as his facial expressions provide instructional support for

ASD readers that help support their understanding of emotions that could also support their understanding of this narrative text (Randi, et al., 2010).

The graphic adaptation also helps autistic readers with perspective-taking. In order to understand Charles Wallace's anger toward Mrs. Whatsit's indiscretions, students must understand the boy's perspective. Perspective taking is "the ability to infer other people's mental states (their thoughts, beliefs, desires, intentions, etc.) and the ability to use this behavior, and predict what they will do next" (Howlin, Baron-Cohen, & Hadwin, 1999). The images accompanying the text in the graphic adaptation organizes Charles Wallace's emotions and provides a visual representation as well. This allows the ASD reader to process the multiple levels of information they get when viewing Charles Wallace's reaction to Mrs. Whatsit's attempts to commit an act with which he disagrees. By putting an image such as Charles Wallace's facial expressions alongside the written text, Larson provides a visual representation of the abstract idea of Charles Wallace's emotions that Grandin has stressed is important to her and others with ASD (Grandin, 1995). This is also an example of how ASD readers may relate a little more personally to Charles Wallace's intense focus on his moral obligation to call out Mrs. Whatsit's transgressions against his neighbor. This image of Charles Wallace also acts as a mirror to ASD readers as they observe the young boy's inability to move on until Mrs. Whatsit corrects her morally questionable behavior.

When comparing the narrative abilities of students with autism, developmental delays, and typically developing students who all had similar language ability, children with autism typically identify the emotions of characters without true understanding of the mental state of the characters (Capps, Losh, & Thurber, 2000). Because of this fact, researchers concluded that the pictures combined with the text may have been what helped ASD readers identify emotions

given the easy-to-recognize facial expressions presented. This focus on faces, as well as comic elements used to provide a visual representation of emotion, has the potential to provide support for ASD students who struggle with taking the perspective of the characters in this narrative text due to their struggle with understanding the emotions of others. While written texts can explain an emotion or how a particular character is feeling, the graphic work combines a visual confirmation of the characters emotion throughout the story line development. What the graphic novel adaptation of *A Wrinkle in Time* does for ASD students as well as neurotypical learners is to provide a visual aid alongside the written story to provide a greater depth of understanding for ASD readers. According to a study conducted regarding meaning making amongst students who were introduced to graphic novels, students who read published coming of age graphic novels (and through the creation of their own stories) learned to synthesize multiple streams of information and were able to make predictions based on the images and text together (Hughes, King, Perkins, & Fuke, 2011). This supports the idea that the use of the graphic novel adaptation can help ASD readers process and respond to the multi-level information they encounter when attempting to understand the emotions of the characters presented. This also aids in the perspective taking the reader must accomplish while reading and attempting to comprehend the text.

Likewise, the graphic adaptation of *A Wrinkle in Time* provides a framework and guidance to readers as they navigate the imaginative text (Randi, et al., 2010). While the words provide a clear enough explanation of the scene, the addition of the consistent comic conventions including facial expressions and body language of everyone involved in the situation provides visual support for the ASD reader. This also supports the ability of the reader to understand the perspective of the characters and empathize with them. And, as recent research has shown,

empathy is a skill that can be developed by reading literature (Koopman & Hakemulder, 2015). Not only is the reader supported in their attempts to understand the perspective of the characters and maybe even begin to empathize with them, the reader is also able to move through the text, pausing, or even looking back with ease, allowing ASD readers as well as neurotypical readers an organized structure for the narrative text.

An additional example of the way consistent comic conventions create an organized representation of the graphic novel occurs shortly after the children first arrive on the planet Uriel at the beginning of their quest to rescue Mr. Murry. Mrs. Whatsit encourages the children to explore this new planet. It is at this point that Mrs. Whatsit asks Mrs. Which if she should “change” and expresses concern over the possibility that this action would upset the children (Larson, 1962, p. 117). Mrs. Whatsit then transitions from the human form that the children are familiar with into a creature beyond human explanation. As discussed, when considering L’Engle’s written account of this event, the story describes Mrs. Whatsit’s new form as something like a horse but not like a horse, with a head similar to a man’s head. L’Engle describes the Mrs. Whatsit creature as a man with dignity, virtue, and cries of joy (p. 63). Where the text version of the novel describes Mrs. Whatsit’s change, the graphic adaptation visually shows the change with a lack of words on pages 118 and 119 of Larson’s adaptation and as shown in figure 6. In the original novel, L’Engle’s description of the metamorphosed Mrs. Whatsit is confusing and contradictory: she is described as like a horse, but not at all like a horse. The sequence in Figure 6 depicts this change far more concretely. Readers also gain a sense of time as Mrs. Whatsit’s change occurs over the two pages. Scott McCloud points to the fact that readers have been conditioned to view individual images as single moments. When these

moments are arranged in the familiar left to right pattern, we will “read” each image as “occupying a distinct time slot” (McCloud, 1994, p. 94).

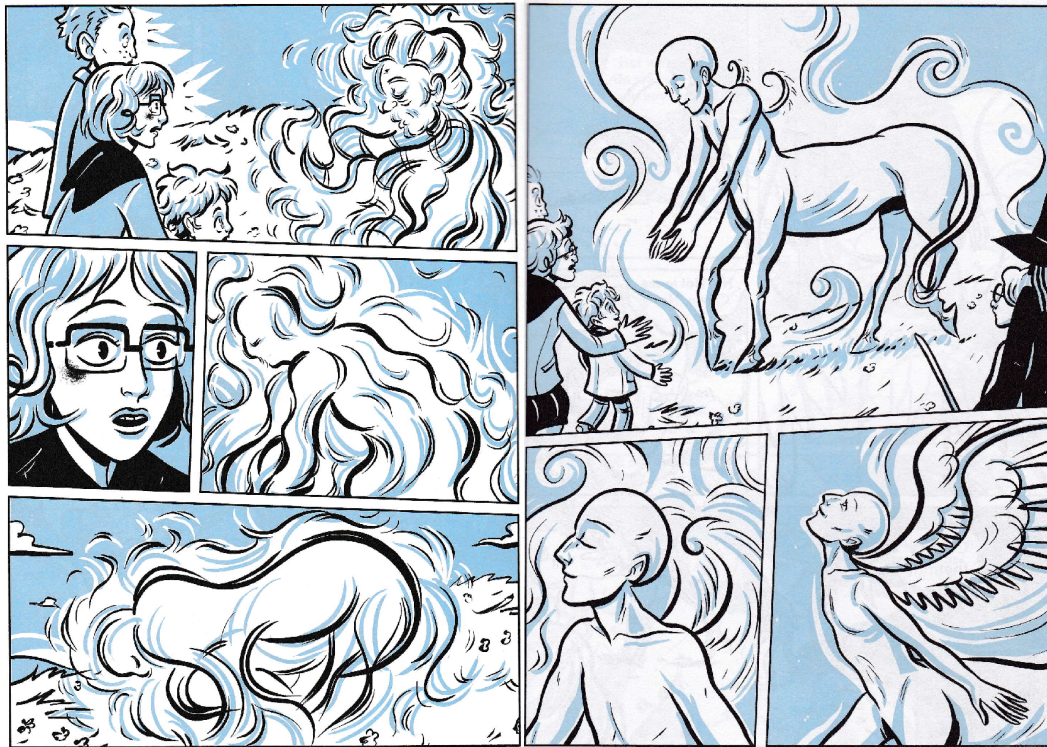


Fig. 6, Larson, pp. 118 and 119.

As readers observe the graphic frames in this distinguished left to right pattern, Mrs. Whatsit’s change emerges. These pages also present as panel-to-panel, or moment-to-moment transitions, which require very little closure on the part of the reader (McCloud, 1994, p. 70). These pages are shown side-by-side in Larson’s novel and as shown in figure 6, so readers see Mrs. Whatsit’s original form right next to her new form. Larson also shows the image of Meg’s shocked expression as she watches this change in progress. What the graphic depiction of this scene does for ASD readers is provide a visual framework to “describe” the change as it’s happening. The graphic novel format not only provides a framework for readers to follow, but also guides readers visual understanding of the change that is literally occurring before their eyes while also allowing the reader to form their own understanding of the events as they unfold.

The written text and the visual representation of this scene may help ASD readers understand this narrative as a sequential event, which may not be the case when reading only the text, given the deficits they may experience with written and visual narrative texts (Coderre, et al., 2018). Observing the visual presentation of the characters' reaction allows readers to consider the event through the perspective of the characters. The use of the text description given by L'Engle and the visual adaptation of the scene provided by Larson can allow teachers to support readers as they attempt to empathize with Meg, Calvin, and Charles Wallace, and try to understand the range of emotions these three experience during this abstract scene. While Larson has provided her own interpretation of the new form Mrs. Whatsit has taken there is still room for interpretation and personal imagination from the reader. The graphic adaptation of this scene takes the framework provided by the images used and allows the readers own imagination to fill in the rest of the necessary information. Similar to how readers gain information from the gutters between each frame, Larson's use of only blue to color in her drawings leaves room for readers to imagine their own vibrant colors for this scene.

Just as Mrs. Whatsit's change in form requires great reader imagination, the introduction of Aunt Beast, and the other beasts of Ixchel, also leave readers to provide context to the abstract image L'Engle paints when describing these gentle creatures. While the text version of the story tells readers about Aunt Beast's unusual features, the graphic adaptation provides visual support for readers. The beast's tentacle like hair and their four arms with "far more than five fingers (L'Engle, 1962, pp. 157-158) are shown as well as described in Larson's adaptation.

Meg's experience as she meets the Beasts of Ixchel, and the way Larson represents this with a black background and simple lines, depicts perhaps the most abstract idea found throughout *A Wrinkle in Time*, the tesseract. Before the act of tessering is described in greater

detail readers observe the three Mrs. W's along with Meg, Charles Wallace, and Calvin as they experience their first tesseract. The graphic novel adaptation of the novel presents a similar tessering experience to that described in the original text, yet it does so with images and few words. Meg's question of whether the moon simply went out or was extinguished like a candle as described in the written text (p. 56) is represented by several panels with black backgrounds where only Meg and Calvin, or Meg herself are visible (Larson, p. 104).



Fig. 7, Larson, p. 104.

On this page shown in figure 7, additional comic conventions are used to represent Meg's movement through space while tessering. Increasingly slanted gutters and the white space between each frame, suggest Meg's process of tessering. These same frames show Meg clearly calling out for her younger brother Charles, but the word Charles slowly returns to her mouth as

if the sound never escaped in the first place. This is a visual representation of the text version of events where Meg explains that the word Charles "...was flung back down her throat and she choked on it" (L'Engle,1962, p. 56). The following page of Larson's novel is filled with frames of complete black and with limited words to describe Meg's senses as she tesses between two worlds.

Just as Meg fades into blackness beginning on page 104, and shown in figure 7, she is shown to return from the darkness on the following pages.



Fig. 8, Larson, p. 106.

Larson presents different perspectives of Meg in each frame shown in figure 8 to describe Meg's return from the darkness of this tesseract. Instead of reading that Meg "...was aware of her heart

beating rapidly within the cage of her ribs” (L’Engle, 1962, p. 57), readers visually perceive Meg’s heart within her rib cage and gain a sense of the rhythm of her heartbeat from the repeated “Ba Dum” “sound” shown in figure 8. Likewise, readers see Meg’s thoughts presented in the familiar rectangular thought boxes on page 106 of the graphic novel. The words used in these word bubbles are the original text from L’Engle’s novel, but they have the added images presented alongside. The transition from white gutter space on a black background, to only black within the frame, then once again white gutters, also allows readers to experience Meg’s journey through the “nothingness” of the tesseract. The sense of time and motion can also be observed in this section as readers move into and out of the darkness (McCloud, 1994).

Following Meg, Charles Wallace, and Calvin’s first experience tessering, and prior to their second tesser, Meg demands an explanation of the tesseract. The text version of *A Wrinkle in Time* describes Mrs. Whatsit’s explanation using her skirt, and some simple images are also included with this explanation. However, the images used in the text are of two hands holding a taut string with an ant marching across rather than the image of Mrs. Who’s skirt. L’Engle appears to be attempting to simplify the abstract idea of tessering with the inclusion of this simple imagery shown previously in figure 1. The same scene in the graphic adaptation is similarly shown, but shows Mrs. Who demonstrating the same analogy, using her *actual* skirt.

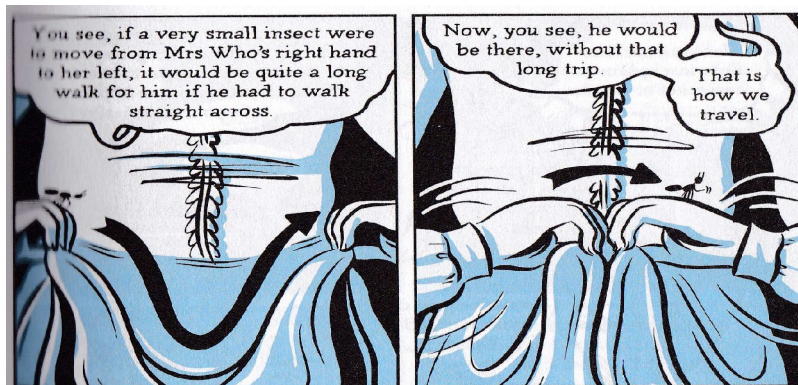


Fig. 9, Larson, p. 139.

Hope Larson's version of this event gives more depth to the description of the idea of tessering and provides a visual framework by picturing the actual skirt described in the written text to demonstrate such an abstract concept. Readers view Mrs. Who's skirt as the tiny ant is able to traverse a wide space in an instant once the folds of the skirt are drawn together. Once again, the use of the panel-to-panel images as described by Scott McCloud as moment-to-moment panels requires very little closure by the reader (McCloud, 1994, p. 70). Closure, or the act of "observing the parts but perceiving the whole" (70), not only more clearly represents Mrs. Whatsit's explanation of the tesseract, but it provides a visual framework for the reader. While Larson's depiction in figure 9 shows the event with much more detail, L'Engle's original illustration adds support to the idea that a visual representation of the abstract idea of tessering can support reading comprehension skills of both neurotypical and ASD readers. The included organizational element that the images in Larson's graphic novel provide is beneficial to ASD learners in helping them comprehend not only the explanation of the event, but also the scene as a whole. Given ASD students struggle with impaired executive functioning, the visual framework used to explain such an abstract idea as tessering supports the ability of ASD readers with regards to organization and sequencing so that ASD readers are better able to manipulate the complex idea of tessering in their working memory (National Research Council, 2001).

One final scene involving tessering helps highlight the abstract nature of this action as L'Engle attempts to describe it in the text version of *A Wrinkle in Time*. When Mr. Murry uses his rudimentary tessering abilities to tesser both Calvin and Meg away from Camazotz to Aunt Beast's planet Ixchel it appears the process significantly affects Meg. What the graphic adaptation does with this scene is to present nearly six full pages with nothing but black panels

that only contain disembodied word bubbles and rectangular boxes housing Meg’s thoughts, as shown in the first six frames of figure 10.



Fig. 10, Larson, p. 303.

When readers consider the multiple pages of black panels, they gain a sense of time as Meg’s thoughts and comments from her father and Calvin move readers through the pages. In images on the preceding pages Larson places recognition of her father and Calvin’s words directly following each character’s statement to give some organization to the text in this section. A traditional word bubble houses Calvin’s comment “Her heart is beating so slowly-” while a rectangular word bubble contains Meg’s thought “Calvin! I can hear him! Even his words sound cold. Frozen” (Larson, p. 298). Larson also makes a simple change to Meg’s thought bubbles in this scene. While Meg is caught in the tesseract her rectangular thought bubbles have a black background to match the black nothingness in which she is seemingly stuck as opposed to the

white backgrounds that typically occur. Readers observe Meg eventually wake from her somewhat unconscious state as shown in the final frame in figure 10. Once again Larson employs the use of Scott McCloud's claim that readers will view each individual frame as a unit of time (McCloud, 1994, p. 94).

With the combination of the written text alongside the visual darkness represented by the continuous black panels, readers gain a better sense of the passage of time than if they only considered the visual representation of Meg's recovery from her latest tessering experience. Despite the lack of visual images across these mostly blank pages that are meant to represent Meg's tessering experience, readers gain a better understanding of this abstract concept through the visual passage of time combined with most of L'Engle's original dialogue for this scene.

Conclusion

Madeleine L'Engle's classic text *A Wrinkle in Time*, and Hope Larson's adaptation of the novel, create an opportunity for inclusion and literacy growth in the Language Arts classroom. L'Engle's insight into a child with autistic qualities portrayed through Charles Wallace's character highlights the growing knowledge of ASD at the time the author wrote her novel. The fact that L'Engle was able to present this unique ASD character as an integral part of her novel given how new the description of the disorder was at the time, is incredible. The inclusion of the young Charles Wallace accomplished the representation of autism in literature that would later be recognized as integral to a child's ability to connect with literature. From Rudine Bishop's early assertions regarding the importance of a student's ability to see themselves and their world through literature (Bishop, 1990), to more recent efforts encouraging the same, such as the hashtag #EmpowerTheReader (Johnson, Koss, & Martinez, 2018), there is no argument against the need for representation for all students in the stories they read. When we consider Charles Wallace's unique traits as autistic tendencies, ASD readers have ample opportunity to find a positive personal representation within the pages of this novel.

With the large number of ASD students receiving accommodations in the Language Arts classroom, the need for more effective ways to approach their education continues to be important. While educators and researchers continue to try to accommodate this subset of students, considering new ways to approach literary education is necessary. The combination of written text and visual adaptation such as the one L'Engle and Larson provide creates a multimodal opportunity for educators to support literacy skills in ASD students. Because research shows that there are deficiencies in reader comprehension of traditional text and visual representations of texts, such as graphic novels, (Randi, et al., 2010; Coderre, et al., 2018), the

combination of the two texts is necessary to create the best opportunity for educators to support the reading comprehension skills of ASD students. By comparing *A Wrinkle in Time* and *A Wrinkle in Time: The Graphic Novel* students also receive support for deficiencies in emotional regulation (White, et al., 2014). The support Larson's visual adaptation provides when compared to L'Engle's original text strengthens ASD readers skills that might be inhibited by core features of autism such as rigidity of thought and the challenges with processing personal emotions, as well as understanding the emotions of others (Samson, et al., 2014). With the increasing availability of graphic adaptations of popular texts, such as *Fahrenheit 451*, Shirley Jackson's *The Lottery*, and even Shakespeare's *Romeo and Juliet*, the opportunity for teachers to use comparisons between written and visual literature to support ASD literacy skills becomes easier to implement. At the very least, the evidence of literary support provided in this thesis, combined with the accessibility of these multimodal texts creates a platform for the discussion of the effectiveness of implementing graphic novel adaptations along with traditional texts as literacy support for the ASD student.

While consideration has historically been given to educational supports for ASD readers when reading traditional texts, or when reading graphic novels, the use of a text with its graphic adaptation is a new idea. By combining existing scholarship on how to support readers in either modality, additional support can be given to educators as they work to improve comprehension skills among autistic and neurotypical students alike. Future applications of the combining of literary modalities in this way may include more detailed considerations of individual challenges ASD readers face such as abstract reasoning or perspective-taking, among others. As we continue to learn more about autism and the implications of ASD in the classroom, giving careful consideration to new ideas for supporting ASD students is important. Traditional text and

graphic adaptation comparisons will provide support for educators as they work to share positive representations of ASD and to support reading comprehension skills amongst this unique group of students.

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