# Learning from and Getting Lost in Graphic Novels: Their Role in Promoting Vocabulary Learning, Comprehension, Motivation, and Engagement

By

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Abstract

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This study examined the use of sequenced visual images (graphic novels and comic books) to scaffold incidental vocabulary learning and text comprehension while processing visual and textual information. Due to the recent growth of graphic novels as a popular text format, empirical investigation is needed to ascertain its value and to possibly incorporate this format into existing curriculua. This format was hypothesized to be particularly effective for English Language Learners (ELLs) due to the visual, non-linguistically loaded images that accompany text that may scaffold learning. Thus, both primarily English speakers and English Language Learners (ELLs) were examined. In this experimental study, 10th grade students' ability to incidentally learn the meaning of targeted academic words from reading sequenced visual images versus text-only format was compared. Additionally, the interaction between format (text only versus text with images) and ELL status (English speakers in comparison to ELL) was examined. Further, the role of intrinsic motivation for reading and transportation was investigated, of students reading in each format were evaluated both as an outcome as well as a mediator of vocabulary growth and reading comprehension.

This study showed that 10th grade students learned statistically significant amounts of academic vocabulary from both the script and graphic novel format of *The Tempest* and *A Midsummer Night's Dream*. Further, these students showed the equal level of comprehension of the Shakespeare plays across the two formats, with some benefits in the graphic format observed in raw score. In addition, there were significant differences in the Intrinsic Motivation for Reading and Transportation scales depending on the format in which the play was read. The data suggests higher levels of intrinsic motivation for reading (Interest and Enjoyment of Reading scale and Perceived Competence scale) and feelings of Transportation (General and Composite scale) after exposure to the graphic novel format rather than the script version of a play. These significant effects of the graphic novel format were found to superseded the effects of the narrative's transportative appeal in the Composite Transportation scale. However, only in the Intrinsic Motivation scale of Pressure/Tension felt when reading, students' feelings were impacted more significantly by the narrative rather than the format. These findings do not show any specific benefit for ELL students in comparison to their predominantly English-speaking

peers across all outcome measures. Lastly, moderating effects were unable to be found due to a lack of initial, meaningful relationship between the format and vocabulary learning. Overall, this study proposes an interesting starting point for the discussion of including the graphic novel format in academic environments to further learning and psycho-social benefits for students.

## Dedication

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# Chapter 1: Introduction and Review of the Literature

## Contextual Background of the Research

Meaning is represented in and conveyed through language (Duke & Carlisle, 2011) and language is expressed in several modalities, most relevant to this study being the modes understood through hearing and vision. The visual representations of language include not only written text, but also pictures and other forms of visual literacies (Cazden, et al., 1996; Fletcher-Spear, Jenson-Benjamin & Copeland, 2005; Kress, 2008). For a variety of reasons, interest in these visual forms of language representation, especially those that move beyond conventional print on paper, has exploded in the last 20 years (Fletcher-Spear, Jenson-Benjamin & Copeland, 2005; Kress, 2008; The New London Group, 1996). In the wake of these expanded views of literacy and what counts as a text, one of the oldest forms of visual language, the comic book (or its 21st Century instantiation—the graphic novel) has witnessed something of a renaissance in popularity (Schnatz, 2015; Wocester, 2017).

This renewed interest is not limited to literacy theory and pop culture; it is also prevalent in issues of curriculum and pedagogy. In the current era of Common Core Standards and perpetually developing technologies, multimodal literacies have begun to replace mono-modal print literacies as the dominant perspective on what it means to be literate in today's world. Multimodal perspectives deliver on the requirement of preparing students to engage with texts in many different formats by helping to develop experiences with the range of media available to all readers (Schwarz, 2006), but they are also becoming part of the mainstream reading curriculum. Graphic novels (Schwarz, 2006), which lie in a space between print and digital media, also offer teachers a previously excluded mode that students may identify with. Further, the Common Core State Standards (2010) call for the use of *alternative* media, which may include the use of comics and graphic novels.

The format of graphic novels and comic books is indeed the very focus of the current study. Graphic novels are a book-length, single story-arc, narrative comprised of sequential art in combination with text (Carter, 2007). The term 'graphic novel' was originally coined by Will Eisner in 1978, and quickly it was appropriated as a marketing term for other comic book authors. For example, Eisner and McCloud, who are regarded as the two early and central theorists regarding the comic book and graphic novel format, did a great deal to secure a foothold for graphic novels in the array of media that adolescents voluntary access for their reading needs. The most widely accepted definition of graphic novels is provided by Scott McCloud, who defines graphic novels as "…[j]uxtaposed pictorial and other images in deliberate sequence, intended to convey information and/or to produce an aesthetic response in the viewer" (McCloud 1993, 9). He further makes the case for graphic novels being a format of text rather than a genre. He argues that the superhero genre is one of the most popular conveyed by the graphic novel format, yet it is not the only one.

Given this renewed interest in visible representations of language, the time seemed right for empirical work evaluating its potential benefits for learners, especially when it comes to those features of learning that we associate with reading texts in schools—text comprehension and the incidental acquisition of vocabulary, especially the academic vocabulary of schooling. Although some formats fit this description abstractly, (e.g. story boards, graffiti and sticker art; Gluibizzi, 2007), this study will focus on those more popular and prevalent in schools: graphic novels and comic books.

Literacy improvements have been found through the reading and writing of comics and graphic novels in classrooms. Beyond conventional literacy benefits, artistic and motivational benefits result from student engagement with reading and writing graphic novels, suggesting that this medium fosters strong bonds between students' real-life contexts and cultures and their academic experiences (McFee, 1998). This review of the literature covers, in order, the evolution of graphic novels, the importance of vocabulary development and the incidental acquisition of unknown vocabulary, selected additional psychosocial constructs that impact reading as well as multiple literacies, and finally the English Language Learners (ELL) educational experience in the United States.

## The History and Significance of Graphic Novels

In order to better understand the potential impact the multiple visual literacies a graphic novel provides to students, it is important to understand the long and at times controversial history of the format. It is crucial to understand that despite the tendency of bookstores and libraries to create a graphic novel section, as they would for history books, science fiction, children's literature, etc., graphic novels and comic books are not a genre but rather a format. Graphic novels and comic books are a format that is utilized by many authors and artists throughout history to communicate narratives of diverse genres (Carter, 2008; McCloud, 1993; Moeller, 2011; Robbins, 2014).

### Graphic Novels: A Brief History

Graphic novels are not a new international format for creating a narrative (Carter, 2009; Martin, 2011; McCloud, 1993). People have been using a combination of images and written text for centuries. One of the earliest examples of the format is from the Tomb of "Menna" in Egypt created over 32 centuries ago (McCloud, 1993), as well as copious cave paintings combining image and symbols to sequentially communicate meaning (Carter, 2009; McCloud, 1993). Further, the format has been found in the tapestry medium, not only in Europe in the French Bayeux Tapestry—created in 1066, depicting the Norman conquest of England—but also in Latin America in pre-Columbian, works in Mayan tapestries describing battles (McCloud, 1993). The theme of documenting battles is also seen in the spiral column carving from 113 AD Trajan's Column from the Roman period (Martin, 2011) that sequentially depicts the Roman victory in the Dacian Wars. More recently, The Tortures of St. Erasmus fresco from the 15th century is an example of the format that has survived to the modern era.

Early examples of the format on paper include *The Harlot's Progress* created by William Hogarth in 1732, depicting across six panels a cautionary tale for women, and his works *The Rake's Progress*, initially painted on canvases, but later reproduced in print as a series of eight panels speaking to moral waywardness (McCloud, 1993). Although some scholars would also mention illustrated Bible prints as early examples of the format printed on paper, their lack of deliberate sequence makes their inclusion controversial. In 1615, Felipe Huaman Poma de Ayala, wrote the King Philip III of Spain a detailed account of life in the Andes spanning from pre-Incan eras through the Spanish conquest and colonization of Peru. This text, *The First New Chronicle and Good Government*, paired sequential image and text to depict in more detail the increasingly problematic tactics used by Spanish rule in the region.

More recently, in the United States, the format has had a tumultuous history. The most commonly cited first comic in the U.S. that had wide, newspaper distribution is *The Yellow Kid*, by Richard F. Outcault in 1895 (Weiner, 2004). This single panel comic became quite popular and was soon followed by a more single-panel and multi-panel comics in U.S. newspapers.

The first comic books published in the U.S. were reprints of these newspaper comics, which first started becoming commercially available in the early 1930's with some commercial success. In 1934, when comic books were reprints, each run of a comic book sold 100,000 copies (Kidman, 2012). This market was radically changed in the summer of 1938 when National Comics' (today known as DC Comics; Sanders, 2016) published its first issue of their line "Action Comics". This first issue was *Superman #1*, which introduced the superhero genre—beyond detectives as heroes of justice—in the US, which lead to a virtual explosion of the format.

After the release of *Superman #1*, the number of copies of comic books sold jumped to over a million copies per publication run (Kidman, 2012). Within a few years, the eight initial publishers of the format were selling 18 million copies every month (Kidman, 2012), each copy was then shared or passed to an additional five readers (Wright, 2001). At their inception in 1937, publishers printed about 150 comic books. In 1940, publishers were releasing about 700 comic books, and all were being met with commercial success (Conners, 2010; Hadju, 2008). The 1930's saw the international arrival of comics, most notably the arrival and instant popularity of the Belgian *Tintin* and his adventures produced by Hergé (pen name for Georges Remi), a comic that also began as a European newspaper comic, but soon was put out as a comic book. In the 1940's Walt Disney's Comics and Stories (quickly followed by Looney Tunes) launched and began circulating 252,000 comic books monthly in 1942, increasing by 1947 to circulating two million monthly and escalating to circulating 3 million comic books monthly by 1953 (Sanders, 2016). In 1940 comics accounted for over $10 million revenue every month (Schnatz, 2015). In 1949, Muhlen found that in the US, 95% of boys and 91% of girls ages 6-11 read comics, and eight of every ten 12-18-year-olds, read about a dozen comics a month.

This popularity soon piqued the interest of librarians and educators (Duffy, 2016), who despite initial hesitations about the format, understood its viral popularity. Soon, these early skeptics began to call for research on the format and its possible uses in education—not unlike the one currently being experienced in the U.S.—(e.g. Hutchinson 1949). Specifically, educational practitioners called for research into vocabulary and comics (Hill, 1943; Mitchell, 1950). The majority of these studies yielded mixed and inconclusive results, however, the educational link was promoted by publications such as *Classical Comics*. Using the popularity of the format, *Classical Comics* sold one million of each of their 28 titles between 1941 and 1946.

During WWII, the classic comic book themes of crime and punishment as well as the focus on justice (Phillips and Strobl, 2006) took a nationalistic and patriotic turn (Scott, 2007). The format experiences all the known heroes, donning outfits of red, white and blue, as well as villainizing nationalities the US was opposing, texts were commissioned to communicate a message of hope and patriotism specifically to the youth of the U.S. (Scott, 2007). In addition many comic book authors enlisted in the U.S. Armed Forces, including Will Eisner, who is generally considered the grandfather of modern comics and graphic novels. While enlisted, Eisner offered to draw a comic for technical maintenance for the Army; this graphic manual was then pitted against the traditional text-only manual in a study conducted at the University of Chicago. At that time, the comic manual was found to be a better way to present the information for comprehension (Van Lente & Dunlavey, 2012). Similarly, comic book great, Stan Lee—the Marvel creator of *Spider-Man*, *The Hulk*, *X-Men*, and many more—used this format to generate health awareness in soldiers fighting abroad (Harris, 2013). In 1945 when the War ended, market researchers estimated that half of the U.S. population read comic books (Stein, Meyer,

Edlich and Denson, 2011). This era of comics is generally referred to as the Golden Age (1938-1956).

However, not everyone in the U.S. was as enamored with the format. Frederic Wertham, a psychiatrist in the US published *Seduction of the Innocent* in 1954, which outlined the psychological, moral and educational harm the comic book format caused. He asserted that comics contributed to acts of moral depravity, juvenile delinquency and "death on reading" (Wertham, 1954. p. 121) in addition to a more general negative impact of the welfare of children (Connors, 2012; Jacobs, 2007; Schnatz, 2015; Tilley, 2012). Further, he implied that allowing children to read comics was criminally negligent of parents and educators (Connors, 2010). This emboldened the anti-comic movement. The National Education Association selected his work as their "book of the year" which was recommended to parents and teachers across the nation (Tilley, 2012). Wertham went on to testify before the United States Congress several times and was a key reason the Comic Magazine Association of America was created to oversee the publication of comic books (Tilley, 2014), until it was shut down in 2011. This government body was comprised initially of former teachers and created the Comics Code Authority (Rogers, 2014), a code or list of regulations that comic books published in the U.S. must meet in order to be sanctioned by the government. This government Authority wielded a seal they would apply to comics they found to not be "objectionable" (Van Lente & Dunlavey, 2012) to the individual reviewing the text and interpreting the Code. Many retailers who had previously sold comics copiously began to require that the comic bear the Comics Code Authority seal prior to agreeing to carry the comic (Rogers, 2014). During this wave of anti-comic sentiment, Catholic schools, Boy and Girl Scouts troops, as well as other community organizations began to host anti-comic book swaps. At these event children were encouraged to bring in their comics (typically over 100 issues at a time) to exchange them for traditional text-only books after which the collected comics were thrown into a public bonfire (Van Lente & Dunlavey, 2012).

Despite the profound impact of Wertham, when his research basis was made public in 2010, it was discovered that the majority of his research was manipulated, fabricated, overstated or compromised (Tilley, 2012). For example, in his work as a psychiatrist, he noted comic books present in rooms of adolescents who committed suicide, and concluded that their presence meant that there was a causal relationship between the comic books and adolescent suicide (Tilley, 2012). However, due to his work the comic book format in the US suffered a tremendous blow that stunted and morphed its development into what is known today to be a comic book.

Due to the extreme backlash on the format in the 1950's, comics experienced three major, fundamentally transformative adaptations. The first was ushered in by the publishing companies that were able to remain in business under the censorship of the Comic Code Authority. The majority of publishing houses could not keep up with the moral objections of the Authority, and by the mid 1970's only four official publishers remained. Legal comic production in the US stalled. One such publishing house is the now powerhouse Marvel Comics, which published its first comic book in 1939, and the previously mentioned DC Comics. Many of today's Superheroes were created in this era of comics, in which the heroes always appeared morally incorruptible and rarely suffered from internal dilemmas or personal struggles. The superhero genre was one that made the adaptation to the Comics Code Authority and was able to survive in the open unlike many other genres communicated in this form.

The second shift that occurred after the 1950's watershed was in the type of publisher that was likely to pick-up predication of a comic book. Independent and small publishing companies began to pick up the format, and the underground "Comix" movement grew (Stein, Meyer,

Edlich & Denson, 2011). Many comics were self-published works to avoid government censorship (Chute, 2008).

The third was that rather than creating and writing for an audience of children, the industry that did not remain in the mainstream began to write more specifically for adults (Riesman, 2017). The art as well as the content matter experienced dramatic changes, with some traditional superheroes also being morphed into more complex characters during the 1960's and 70's. The format and its followers spent over two decades—typically referred to as the Silver Age of Comics (1956 to 1970's)—in this fashion (either sanitized for the Authority, or underground), which originated the pervasive perception that the format is inherently edgy (Moeller , 2011), counter culture (Stein, Meyer, Edlich and Denson, 2011) and subversive (Chute, 2008; Mackey & McClay, 2000) which lead to the format's exclusion in schools.

In 1978, Will Eisner published *Contract With God* the first text that used the marketing term "graphic novel". By using this term some of the stigma associated with comic books that had been so strictly policed for decades began to erode. Between the publication of this graphic novel and 1985 is a period in comic history that most scholars and fans know as the Bronze Age of comic books. Although superheroes were still the most lucrative genre, there began to be an inclusion of darker plot elements that had been absent since the Golden Age, and before the Censorship in the mainstream publications. At this time, some of the themes often relegated to the independent or more underground works began appearing in mainstream comics, with no significant backlash from the Comic Code Authority. This short period laid much of the groundwork for our current Modern Age.

Most scholars agree that 1986 marks the beginning of the Modern Age of comic books. It was in this year that three graphic novels were published that revolutionized the format and public perception of it. First, *Maus: A Survivor's Tale* (Spiegelman, 1986) depicted the author's father telling him his story of survival as a Jewish man in Poland during the Holocaust. Despite publishing shorter, serial installments, in 1986 the first of the two bound graphic novels was released. This text used anthropomorphized animals (e.g. mice, cats, dogs) to narrate the tale, consequently removing the human face of many of the atrocities retold by his father. The second groundbreaking text was *Batman: The Black Knight Returns* (Miller, 1986), which portrays the last adventure of the beloved hero. Unlike previous iterations of the hero, this time a dark, flawed and old man (Bruce Wayne) comes out of retirement for his final battle. This graphic novel was so successful Miller released *Batman: Year One* in 1987 providing the other book-end to the Dark Knight's saga. This is touted as providing the frame, within which all other Batman comics created would be able to fit within, the first time this had been attempted. The third text released was *Watchmen* (Moore & Gibbons, 1986-87) in which dark themes (e.g. drug abuse, murder, rape and plague) are discussed in metaphor or allegory of the U.S. global War on Drugs, the AIDS epidemic and the political scandals of the 1980's in the U S. These graphic novels set the tone for the Modern Age of comics, as one that reclaimed its power and allowed many genres to into the mainstream.

The success of these graphic novels was closely followed by other master works in the format, all showcasing the many possibilities of content and expression in the format. These works included: *V for Vendetta* (Moore & Lloyd, 1989); *Animal Man* (Morrison, 1988); *Violent Cases* (Morrison & McKean, 1987); *Black Orchid* (Morrison & McKean, 1988); *Batman: The Killing Joke* (Moore & Bolland, 1988); *The Amazing Spider-Man* (Michelinie & McFarlane, 1988); and *Sandman* (Gaiman 1989-1996). United States publishers printed this flood of graphic novels across genres, but many of these authors and/or artists were of British origin. In 1989

many of the major publishers of comics and graphic novels began to question and challenge the need for a Comics Code Authority and its seal of approval. In 1991, *Maus 2* was released by Spiegleman, and his work on the Maus series won the 1992 Pulitzer Prize, elevating the format to national attention as more than just "junk" or "low-brow" entertainment (Chute, 2008).

It was at the turn of the century that teachers and librarians began to reexamine the potential of the graphic format for education. This attention provided an unprecedented shift in public viability, as well as cultural valorization beginning in the 1990's (Stein, Meyer, Edlich & Denson, 2011). This also began the most recent wave of academic and scholarly focus on comics, cartoons and graphic novels (Worcester, 2017). This serious attention on the format allowed for Joe Sacco to publish *Palestine* in 1996 and initiate the now booming genre of comics-journalism and invigorate the genre of nonfiction, long form graphic novel (Worcester, 2017). Sacco's work allowed for an audience that may have been reluctant to read nonfiction, or dense news stories, to have a more accessible format to engage with the content (Gluibizzi, 2007). The widespread reach of this popular perception of graphic novels led to *Watchmen* (Moore & Gibbons, 1986-87) to be placed on the *Times Magazine* "100 Best Novels of All Time" list.

The following decades (2000-present) further revolutionized and shifted public perception of the format in two major ways: by permeating U.S. culture and by appealing to children once more. Both prongs of this most recent shift became evident in the use of the format after the events in the U.S. on September 11, 2001. As had occurred during WWII, most graphic novels look on a patriotic hue that particularly glorified "everyday heroes" such as first responders, as well as villainizing and depicting violently "hunting down" terrorists, typically of Middle Eastern descent (Scott, 2007). Although appearing to target young readers, the wide distribution of the format in the U.S. made this more than children's propaganda (Scott, 2007). Further, the U.S. military publicly began recruiting comic book authors and illustrators as the U.S. was becoming actively engaged in conflicts in the Middle East (Cromer & Clark, 2007). These authors and artists comprised parts of the Psychological-Operations that developed comic books to distribute to Iraqi and Afghani children to ensure that the pro-U.S. message reached the children of these countries. This goal was made explicit and elevated due to the fact that children are a country's future leaders and fighters (Cromer & Clark, 2007). One rare exception in this nationalist rhetoric must be noted. In 2003, Marvel released *411 volume 1* in which rather than stereotype and pit identities against each other, a message of peace, and non-violence was put forth; and the collection's authors encouraged finding commonalities rather than differences. Unfortunately this work was drowned out by a decade of nationalistic and oftentimes racist texts (e.g. *Holy Terror*, Miller, 2011).

The format was so powerful at the beginning of the century that Art Spieglman (of *Maus* fame) created *In the Shadow of No Towers* (Spiegleman, 2004) about his reaction to 9/11 and the months that followed, from his perspective as a resident of New York City. Further, when the 9/11 Commission released its final report in 2005, a graphic adaptation was made by Sid Jacobson and Ernie Colon, and released in 2006. The sole purpose of this adaptation was to make the government findings accessible to the general public who was not reading the government publication. Jacobson ensured that the adaptation used nearly all language and phrasing issued in the original report.

The permeation of U.S. pop culture was cemented when Marvel developed its own film studio (later sold to Disney) and released *Iron Man* in 2008. The film took popular culture by storm. Currently the Marvel Cinematic Universe has released 18 films, with a total of $14.786

billion in box office sales with films already slated with release dates through 2020. The format gained positive associations with superhero films, increasing motivation to read the format (Wax, 2002). Such was the popularity inspired by the films and permeation into U.S. culture that in 2009, the US Navy used the graphic novel format for recruiting U.S. citizens for service (Harris, 2013).

Further, the format's acceptance into more the traditional literature genres has been bolstered by the many excellent graphic memoirs that have followed in the example of *Maus* (Spiegleman, 1986, 1991). The graphic memoir genre has boomed in adult literature with popular titles such as Alison Bechtel's 2006 *Fun Home: A Family Tragicomedy*, which was later successfully adopted for Broadway and followed by *Are You my Mother: A Comic Drama* in 2012. The graphic memoir genre has also brought rich themes of self-identity discovery and social justice to adolescent readers; and works such as *Persepolis* by Marjane Satrapi (translated into English in 2003 and 2004, adapted to an Academy Award winning film in 2008) have begun to enter some high school and college classroom curriculum. Further, titles such as *American Born Chinese* by Gene Luen Yang (2006) are sprinboarding authors, like Yang, to the national spotlight in the genre of young adult literature. Such was this success that Yang was appointed the 2017 National Ambassador for Young People's Literature. The rich themes presented in this format are adding depth and variety to classroom curriculum (Teale, Kim & Boerman-Cornell, 2008).

The graphic memoir, in combination with comic journalism, spearheaded by Joe Sacco, allowed for the non-fiction market to be primed for comic texts and manuals (Priego, 2016) that have appeared to teach contract law (Botes, 2017); business ethics (Gerde & Foster, 2008); sociology and physics (Gerdes & Foster, 2008); college biology for non-majors (Hosler & Boomer, 2011); medicine and health care (Priego, 2016); medical journals (Weaver-Hightower, 2015); science journals (Priego, 2016); and to create edu-tainment type lessons and content for the classroom (Cirigliano, 2012). Such was the booming popularity of the format that in 2013, Amazon announced that they would begin paying for the publication of Kindle-only comics to try to capture the digital market. Despite their childish origins, the average comic book reader in the early 2000's was 24 years old.

The second prong of the deep shift in the U.S's attitude towards the format is its appeal to children. The crippling backlash in the 1950's against the format was grounded in the belief that it inherently harmed youths with particularly negative impacts on their morals and education. Therefore, work geared towards children had been among the most 'protected' since the 1950's by the Comic Code Authority, and was comprised mostly of morally upstanding superheroes. Whereas works across genres written for adult audiences had developed variety in breadth and depth, the format had not evolved for young readers in nearly 50 years. The "Youth Comic Explosion" (Riesman, 2017) began with an enormous influx of Japanese Comics called Manga (Toku, 2001) at the turn of the century. Japan's history with the format had been quite different than in the US, and both adult and children had consumed it at a level that allowed it to flourish. The sales of and interest in Manga caused publishers in the US to take note and begin to write with children as the intended audience. As part of the comic industry refocusing on children, many large publishing companies began opening a graphic novel branch (e.g. Scholastic Books in 2005 launched Graphix) and new companies were created (e.g. TOON books in 2008) to appeal to young readers (Brenner, 2011). As quickly as these graphic novels were published, they were purchased with enthusiasm. This surge lead the Maryland State Department of

Education launching a Comic Book Initiative to promote reading in young, reluctant readers in 2004 (Harris, 2013).

In 2006, US sales of graphic novels and comics reached $330 million, with librarians accounting for 10% of sales (Gorman, 2008). The Young Adult Library Services Association launched its "Great Graphic Novels for Teens" list in 2007 (Schnatz, 2015) and Gene Luen Yang won Best Book of the Year from Publisher's Weekly in 2006 for *American Born Chinese*. Since this initial push mid 2000's, graphic novels for children have increased exponentially and continued to gain accolades (Chase, Son & Steiner, 2014). In 2012, comics specifically for young readers made up 15% of all comic sales in the U.S (Schnatz, 2015).

In 2010 author Raina Telgemeier entered the youth graphic novel scene with her debut novel *Smile* which spent approximately 200 weeks on the *New York Times* Bestseller list (Riesman, 2017). Since then she has published on topics such as middle school drama, disabilities, sexual preference, cultural differences and religious beliefs—all topics that the format had been kept from addressing with children for decades. Most recently, she has begun adapting the classic series *The Babysitters Club* to the graphic format.

Further, the content of youth graphic novels has responded to the current era of social justice and call for representation of minority populations in literature (Schwarz, 2002). For example, in 2011, Marvel Comics 'killed' the character Peter Parker, but the mantle of Spider-Man endured and was adopted by Miles Morales, an Afro-Latino biracial boy, who is bitten by the same spider granting him the expected abilities. In 2014 *Ms. Marvel* began its new run with heroine Kamala Khan, a Muslim, Pakistani-American young woman at its helm. In the comics Kamala is exposed to not-so-micro aggressions (e.g. "no offense, but you smell like curry") and the impact on the character is not glanced over or hidden by author (Wilson & Alphona, 2014). Further, the latest run of *Black Panther* tapped National Book Award recipient Ta-Nehisi Coates to author a year's worth of issues for Marvel (a contract that has currently been extended). This new wave of comics for young readers has particularly reached out to young girls and minorities, and those readers in particular have accepted willingly. Current national sales of comics and graphic novels are topped by texts geared toward young readers (Riesman, 2017). Due to the soaring popularity of the format (Cromer & Clark, 2007) not only are sales increasing, but libraries are experiencing a renewed popularity with patrons looking for the graphic format (Crawford, 2004). This shift to younger readers has helped make the format acceptable yet again in schools (Gorman, 2008). Comics have become one of the most popular formats for adolescent recreational reading (Brozo, 2006).

**Graphic Novels in Research: A Modern Wave**

The integration into US culture and reengaging of younger readers has consequently transformed how the format is perceived in academia. This surge of overturning assumptions is profound in the U.S., and is simultaneously occurring globally (Wocester, 2017). The last two decades has legitimized and popularized the field of scholarly examination of the graphic format (Cohn, 2014). Teachers and educators believe that the format is popular among young readers due to the illustrations, popular cultural references, helping young readers to identify with the characters and story lines as well as the accessibility to the content regardless of reading ability (Christensen, 2007; Mathews, 2011). Students report enjoying the fun, accessible and quickly read texts (Moeller, 2016). However, U.S. schools have a long-standing tradition of giving primacy to alphabetic texts (Connors, 2012; Thompsen, 2017), despite the recent shift to Common Core State Standards and their emphasis on multiple literacies in the classroom.

**"Boy Books" for low-ability readers.** The initial wave of research into the format was spurred by the adult assumption that comic books were "boy books" (e.g. Blair & Sanford, 2004; Brozo, 2006; English, 2012; Gavigan, 2010; Moeller, 2011; Teal, Kim and Boerman-Cornell, 2008), despite the fact that students today do not find the format to be gendered (Moeller , 2011). It was assumed that since young boys had a documented, comparative difficulty in learning to read (Blair & Sanford, 2004), that these "home-run" texts would facilitate hooking them into reading (VonSprecken, Kim & Krashen, 2000). Further, the literature assumed that since boys were struggling readers and they enjoyed the format, that this format would appeal and support other struggling readers, including ELLs (Carter, 2009; Connors, 2010; Crawford, 2004; English, 2012; Ranker, 2007; Snowball, 2005; Thompson, 2007). Yet, it has been found that with this format, there is no gendered advantage for boys, but rather, the established reading skills of girls supporting stronger reading comprehension in both formats in both native English speakers and ELL's (Chun, 2009). Further, this format can motivate and engage proficient as well as struggling readers (Carter, 2009).

With these assumptions in mind, the current literature suggests possible positive implications for several valued outcomes: academic performance (Brozo, 2006; Burton, Horowitz & Abeles, 1999; Schwanenflugel, et al., 2004), motivation, inferencing (Smetana et al., 2009), critical literacy (Chun, 2009; Fischer & Frey, 2007; White-Schwoch, 2011), values, morality, ethics & social responsibility (Carter, 2007; Wolk, 2009), engagement (Frey & Fischer, 2004; Jacobs, 2007; Newkirk, 2005), interest and choice to read text (Allen, 1995; Botzankis, 2009; Smith & Wilhelm, 2002), higher order critical thinking skills (Thomas & Jolls, 2005), understanding of complex ideas (Frey & Fischer, 2004), and multiple literacy skills (e.g. Cantrell, Almasi, Carter, Rintamaa & Madden, 2010; Cope & Kalantzis, 1995; Gillenwater, 2009; Tyler, 1998).

**Graphic novels in educational settings.** Graphic novels support learning and benefit classroom literacies (English, 2012). The existing literature on graphic novels' supports the potential to promote the use of these literary formats in libraries and other academic settings (Dallacqua, 2012), with recent acceptance even into elementary schools (Boerman-Cornell, 2016). Further Dallacqua (2012) argues that these positive outcomes are caused by heightened engagement with texts and academics promoted by these texts. In preliminary studies, reading graphic novels promoted verbatim recognition of texts (Short, Randolph-Seng & McKenny, 2013) and elementary and high school students reported higher engagement and interest with the graphic texts (Jennings, Rule & Zanden, 2014; Lin & Lin, 2016). Despite students reporting higher interest, comprehension and enjoyment of reading in the graphic format, the findings on whether students can learn from the format are mixed. At a collegiate level, the graphic text was found to not only increase comprehension of biology, but also improve student attitudes about the subject when compared to peers using a traditional text-only textbook (Hosler & Boomer, 2011). Yet at a high school level, for students without the minimal amount of necessary, background information and existing content knowledge, the format did not improve learning, whereas it was successful at improving learning for their peers with more familiarity with the subject matter (Lin & Lin, 2016). Therefore, the format can support and scaffold the building of knowledge if an adequate foundation is already in place, much like traditional text-only teaching materials.

**Motivation and reading comprehension.** The impact of the graphic novel format on motivation and academic outcomes has begun to be studied in the last two decades. The increasing popularity of graphic novels with students (Carter, 2009) may be leveraged, as there is

evidence that graphic novels can motivate students to read (Cromer & Clark, 2007). Specifically, it has been found that that this combination of text and image can support reading comprehension (White, 2011). The reading comprehension literature with graphic novels focuses on the motivational aspect of graphic novels (Jimenez & Meyer, 2016), as the format has been found to improve reading comprehension for all students (Falter, 2017).

Students who have participated in studies with the graphic format have reported that the multiple visual literacies enhanced their comprehension of the text as well as their motivation to read (Gavigan, 2011). Moreover, in elementary school settings, students felt less pressure due to the fact that there were fewer words per page for them to read in the graphic novel format (Brenna, 2013). In the same study, the classroom teacher reported sustained student interest when reading in the graphic format and further noted that her students read voraciously during the study and that avid as well as struggling readers were motivated by the format.

Although commonly considered a simplified format of a text, the synthesizing of sequenced, multimodal text and images to create a unified narrative, is a complex cognitive task (Boerman-Cornell, 2016; Connors, 2013; Hammond, 2009; Jimenez & Meyer, 2016; Monnin, 2008). Thus, the overall work and cognitive load that reading comics and graphic novels requires exemplifies those skills needed for general reading comprehension (Rapp, 2011). Students were found to be better able to uses text comprehension strategies they had been taught in the graphic novel format rather than in traditional text-only, leading to the belief that graphic novels may be advantageous for supporting metacognitive strategies for reading (Brenna, 2013). In addition to combining two modes of literacies, the format does not have one correct form of reading it, as some are able to take in the whole panel at a time, whereas other readers take in the images first and then read the text, and others read the text prior to engaging with the images (Jimenez & Meyer, 2016). Some eye-tracking research and visual attention mapping has begun to be conducted to better understand how people read the multiple visual literacies provided in graphic novels (Heath & Bhagat, 2011), however, it is proving to be difficult to discern if people spend longer looking at an area because they find it difficult to understand or if they find it more engaging and therefore invest more attention to it (Jimenez & Meyer, 2016).

Graphic novels may be found to be even more useful in secondary education, as the medium inherently offers engagement in media literacy as well as the trend in the graphic novels promoting themes of social-political issues (Schwarz, 2003). Graphic novels allow for students to approach and critically learn about identity formation, higher-order critical thinking skills and intellectual freedom (Thoman & Jolls, 2005). Further, graphic novels have been found to positively impact the "value of reading" prong of intrinsic motivation (Gavigan, 2010). This increase in perceived value was observed in male readers particularly, therefore proposing a possible way to bridge the gap between the genders in intrinsic motivation for reading. This increase in perceived value may further engage students with reading, therefore encouraging their reading both in and out of school.

**English Language Learners and Graphic Novels**

The difficulty ELLs face in acquiring reading skills could be positively impacted by the graphic novel format. Low performing ELLs were found to be able to recall 38.7% of information when high-level texts were paired with comics, whereas they could recall only 19.4% without the comics (Liu, 2004). It is thought that the support provided by the multiple visual modes present may support learning for ELLs (Connors, 2010; Ranker, 2007). The robust context of the graphic novel format may support the high language needs of ELL students in developing how to use the English language in a classroom setting (Chun, 2009). Further,

programs have begun to be developed to specifically target ELLs literacy development through the use of reading and writing graphic novels. An example of such a project is Graphic Journey, which promotes developing positive identity for Latino teens (Danzak, 2011). This trend of targeted teaching the reading and writing of the format to ELLs is similar to that observed for native English speakers (e.g. The Comic Book Project in New York) just prior to the format becoming accepted in an educational setting. It is further observed that the graphic format is particularly adept at developing critical literacies for ELLs (Chun, 2009). Due to the importance placed on these literacies in the Common Core State Standards, it is possible that the format may be uniquely placed to develop these skills.

**Skepticism about the format.** Yet, the field of comic book research is still in its infancy (Stein, Meyer, Edlich and Denson, 2011), and many argue, not taken as seriously as it should be (e.g. Beaty, 2015; Carter, 2007; Connors 2010; Griffith, 2010; Groensteen, 2009; Low, 2017) or that when it is used, it is often with much skepticism (e.g. Lapp, Wolsey, Fisher & They, 2011; Cromer & Clark, 2007; Downey, 2009; Moeller 2016). Despite making great gains in the inclusion of the format in schools and libraries, the depth and breadth of the format and all its genres has not been acknowledged outside of a supplementary text or a tool to gain initial engagement of struggling readers by parents, teachers or researchers (Connors, 2010, 2012; Fatter, 2017; Kachorsky, 2015; Moeller, 2016).

For many, the format is still considered "low brow", easy or simplified texts, "light-reading" and even frivolous works that detract from "real reading" as the format is not part of "real books" (English, 2012; Falter, 2017; Hajdu, 2004; Hatfield & Svonkin, 2012; Kidman, 2012; Robbins, 2014) rather than as a literary format that can promote rich, thought-provoking and moving literature (Connors, 2010; Gerde & Foster, 2008). Griffith (2010) has argued that despite the increasing rate at which graphic novels are being purchased for personal, school, and classroom libraries, popularity alone does not justify the incorporation of graphic novels into the classroom. Some authors argue that the terms "comics" and "funnies" give an inherent feeling of levity (Low, 2017) and that this could be shifting as the terminology for the format adapts. Further, in response to criticism that this popular format is not fostering reading skills, it is pointed out that it is a format that is actually being read prolifically by students (e.g. Ito, 2014; Lyga and Lyga 2004; Schwartz & Rubenstein-Avila, 2006) and that reading scholars have steadfastly held that the largest contributor to reading achievement and development is the act of reading.

With regard to the current study, the most important insights from the work on graphic novels is the positive impact the format has on promoting the act of reading in schools and libraries. This increase in reading has been credited to highly engaging and transporting visuals as well as intrinsic motivation of students to read an alternative format in a traditional, academic setting. This study will examine both transportation and intrinsic motivation in both the graphic novel format in addition to the traditional, text-only format, and academic outcomes (vocabulary growth and reading comprehension) to determine if the prolific reading of the format also contributes to reading achievement measures, as text-only reading has been shown to do.

## Vocabulary

Language and vocabulary are precursors to future literacy acquisition and consequently academic achievement (Stechuck et al., 2006). The relationship between general reading ability (usually operationalized as a score on a test of reading comprehension) and vocabulary acquisition has been particularly widely explored in L1 contexts (e.g., Freebody & Anderson,

1983; McKeown, 1985; Nagy & Anderson, 1984; Nagy, Anderson & Herman, 1987; Nagy & Herman, 1987; Stanovich, 1986). The study of the link between vocabulary knowledge and comprehension is not a new field of study (e.g. Alvermann, 2002; Anderson & Freebody, 1982; Davis, 1942; Just & Carpenter, 1987; Pearson, Hiebert & Kamil, 2007; Whipple, 1925). Therefore it is examined in this study, with a particular interest in the context of graphic novel reading, which has only recently been explored.

**Vocabulary Learning**

Vocabulary is developed from infancy at different rates, primarily dependent on your environment. Initially, a child's vocabulary is developed by listening to the people in her environment and then engaging in oral conversation (Beck and McKeown, 2007). This pre-literacy skill is developed by the time a child turns three years old. A child's environment, then, impacts the size of his or her vocabulary (Hart & Risley, 2003). These environments do not develop vocabulary at an equal pace and some students have significantly earlier exposure to language than other. Once a vocabulary spectrum has formed, the gap between high-vocabulary and low-vocabulary children remains (Biemiller & Boote, 2006).

Once a child begins to attend school, the oral language provided to all students in a school setting is not enough to close the existing gap (Biemiller & Boote, 2006; Cunningham & Stanovich, 1998). Further, as a child's vocabulary develops in the educational system, the words used in her grade-level books will most likely not provide her with vocabulary enrichment due to the primacy placed on decoding and fluent reading rather than vocabulary growth in schools. Therefore, it is through read alouds and explicit instruction that adequate challenge and therefore enrichment can be provided for vocabulary growth to occur (Cunningham & Stanovich, 1998).

Explicit instruction of vocabulary has been shown to have more success than no instruction (Beck, McKeown, & Kucan, 2013; Duke & Carlisle, 2011), and is therefore a more successful method for teaching vocabulary than informal, context dependent or incidental modes. Although, explicit instruction of vocabulary has been demonstrated as a more effective method, it nonetheless does not account for all of the vocabulary words students learn (Nagy, Herman, and Anderson, 1985). Indeed, there is a robust literature demonstrating that incidental learning of word meanings not only occurs, but accounts for a significant proportion of word learning (Nagy, Herman, and Anderson, 1985).

It has been clearly determined that incidental vocabulary acquisition happens during reading at a substantial rate (Nagy, Herman & Anderson, 1985). When students fail to acquire this resource, the results are serious; Torgesen (2002) found, that limited vocabulary in kindergarten in among three predictors for failure to learn to read. Therefore, vocabulary development and enrichment is crucial to improving a student's reading ability. Vocabulary is important to develop due to the fact that reading fluency and comprehension are dependent on a reader already knowing 90-95% of the words in the text (Nagy & Scott, 2000). A reader with a strong vocabulary, who understands 90% of the words read, can begin to access the text and use the context to learn the remaining 10% of the words (Nagy, 1995). This difference in comprehension of the text can lead to faster gains in vocabulary and literary ability for a student who already has a strong vocabulary when compared to their peers with smaller vocabularies.

The ability to extract a meaning from an unknown word is directly linked to pre-existing vocabulary and possessing enough domain knowledge to decipher the meaning of a word based in the context in which it is encountered.

**Incidental Vocabulary Learning.** Incidental vocabulary acquisition is generally described as the *picking up* of new words when students are engaged in a reading, listening,

speaking, or writing task (Rott, 2013). This *picking up* occurs in reference to the contextual cues embedded in the information surrounding the unknown word. This type of learning is initially inferentially driven, as students infer the meaning of the unknown word from the words and ideas in the surrounding context. It is possible that students may already know an alternative label for the concept (e.g., they know brave but not the target word, courageous) and need to infer that the meaning of the unknown word is identical (or similar) in meaning to the previously learned label.

Although there is little debate in the vocabulary acquisition literature that explicit instruction is more successful at teaching novel vocabulary, it is also understood that this method is highly time consuming, and cannot begin to account for the majority of words learned every academic year (Nagy, Herman & Anderson, 1985). It is undeniable that in addition to robust explicit instruction, incidental learning happens successfully through reading. The body of literature on incidental vocabulary acquisition shows that vocabulary is learned at a rate greater than that which could be acquired from formal instruction (Nagy, 1995). Incidental learning, therefore, accounts for the majority of the thousands of new words students learn annually.

Initially, this learning occurs developmentally through verbal contexts and is then enhanced through reading (Herman, et al., 1987; Jenkins, Stein & Wysocki, 1984; Nation & Meara, 2002; Nagy, Herman & Anderson 1985; Shu, et al., 1995). When a person encounters an unknown word in print, typically marginal incremental increases of word knowledge occur (Nagy & Herman, 1987), and the word can be accurately understood in as few as two exposures (Bisson, van Heuven, Conklin & Tunney, 2014). As readers are exposed to the same new word multiple times, in many contexts, they are able to combine the incremental word knowledge and learn the word. Some researchers have found that due to the active participation in learning and the greater cognitive load of incidentally learning words from context, words learned in this fashion are retained better in long-term memory (e.g. Hulstijn & Laufer, 2001).

Nagy, Herman, and Anderson (1985) demonstrated in their seminal study that incidental learning not only occurs in naturalistic reading, but also that the number of exposures to a specific word required for learning to occur is lower than expected. They found that students could learn a novel word meaning with as few as two exposures. Their work laid the groundwork for subsequent research that has shown that children learn between 1,000 and 3,000 words every year of schooling (Nagy & Anderson, 1984). Due to the time explicit instruction requires, it is impossible to explicitly teach this many words every year, therefore incidental learning makes up the bulk of this vocabulary learning (Nagy, 1995). Swanborn and de Glopper (1999) found that in the course of normal reading (i.e., without any explicit instruction), students learn approximately 15% of unknown vocabulary they encounter in the text. Similarly, Nagy, Herman and Anderson (1985) found that eighth grade students learned approximately 10% of unknown vocabulary when they read a text once, presumably as a function of both the simple exposure to new words in relation to their existing vocabulary knowledge (i.e. robust vocabulary measure or semantic relatedness, knowledge of adjectives, etc.). This line of work has demonstrated that existing vocabulary knowledge creates a context and a repository for incidental word learning in response to even a single reading of new text.

**Vocabulary acquisition and reading ability**. There is significant research within the incidental vocabulary acquisition field that is conducted by comparing the learning of students with high and low reading abilities. Frequently students who are learning a second language (typically English) are often studied in the same manner as those students who have low reading abilities. Such studies focus on groups that are markedly different in ability and study how

incidental learning may be different among the groups. When more closely examined, one may find that more fluent readers utilize the context surrounding an unknown, novel or low-frequency word, and may have more developed language strategies to better use the contextual cues that are available to a reader.

A student's existing reading ability directly impacts their ability to learn vocabulary incidentally (Shefelbine, 1990; Swanborn & de Glopper, 1999, 2002). In their 2002 study, Swanborn and de Glopper found that sixth-grade students with low reading ability were unable to learn unknown vocabulary incidentally as effectively as those students with high reading ability. With the focus on low reading ability students, it has been found that clear and appropriately robust contexts may be needed to block misleading inferences about a word's meaning (Carroll & Drum, 1983; Konopak, 1988a, 1988b; Schatz & Baldwin, 1986). In addition, several studies have found that by creating texts that provide more information in a clear manner, low reading ability students are better able to draw more information from the context to a level more comparable to their high reading level peers (e.g., Diakidoy, 1993; Gordon, Schumm, Coffland, & Doucette, 1992; Herman, 1985; Konopak, 1988a, 1988b). These steps can be taken to help low reading ability students better access the context to scaffold incidental learning.

**Vocabulary acquisition during reading**. Working with the novel *A Clockwork Orange*, Saragi, Nation and Merister (1978), were able to demonstrate strong incidental vocabulary learning. This authentic novel, rather than assessment-created text, presented the reader with approximately 241 nonsense words—all based on Russian phonemes—over the course of roughly 200 pages. In the commercial version of this novel, a glossary of these nonsense words is included to ensure and facilitate reader understanding of the text. In this study, Saragi, Nation and Merister presented the text to adults without the glossary, and then asked them to take a vocabulary test on 96 of the presented nonsense words. This study showed that meaning could successfully be allocated to a nonsense word based on the context in which it is found. Further, Pellicer-Sánchez and Schmitt (2010) found that the students learned best when unknown words were shown in meaningful context a minimum of ten times. It has been previously noted in this review that these exposures must be in meaningful, authentic, consistent and natural context for best lexical gains and to optimize motivation to engage with the texts (Currie, 1997).

The bulk of replications of the Saragi, Nation and Merister (1978) study have been conducted with English Language Learners as participants engaging with *A Clockwork Orange* (e.g. Horst, Cobb & Meara, 1998; Pitts, White & Krashen, 1989) due to the belief these conditions can be best simulated and studied with second language learners of no specific language dyads (i.e., not all must be native Spanish speakers learning English). In schools, incidental vocabulary learning has been studied in special education populations (Smetana, Odelson, Bunrns & Grisham, 2009), ELL students (Horst, Cobb, & Meara, 1998; Shu, Anderson, & Zhang, 1995), and students with low levels of English (Piaget, Inhelder & Sinclair-de Zwart 1973). Within these atypical populations, the use of alternative formats has been investigated, and significant success in vocabulary acquisition and reading comprehension has been found.

The majority of the replication studies have been criticized for not measuring the intended construct of unknown vocabulary learning, but the critiques emanate from two diametrically opposed faces of authenticity—excessive simplicity and excessive complexity. In the former critique, Read (2000) highlighted the fact that many of the texts used for these studies were predominantly basal readers or modified texts that do not captivate reader interest in the way that authentic literary texts do. Secondly, those studies that use the novel *A Clockwork*

*Orange* introduce another sort of inauthenticity—inordinate complexity. *A Clockwork Orange*, while a prima facie authentic work of literature, is significantly more complicated than the type of texts most readers will encounter in their everyday lives. Thus, it is important for future replications to focus on using authentic texts that are interesting and optimally complex, that is, written at the level of complexity that students will encounter in their future as competent readers. Despite these studies, there has only been preliminary evidence that general education students also utilize context to better understand and build vocabulary. The study outlined in this dissertation attempts to address both of these conditions.

**Academic Vocabulary**

There have been several definitions of what makes up academic language throughout the literature. Nagy and Townsend (2012) defined it as, "academic language is the specialized language, both oral and written of academic settings that facilitates communication and thinking about disciplinary content" (p. 47). There are two generally accepted methods of identifying and organizing academic vocabulary. The first is a three-tiered approach promoted by Beck, McKeown, and Kucan (2013) initially published in 2002. In this literature, Tier One words are those most frequently found in oral language, Tier Two includes high utility words in written works but not in spoken language that are utilized across domains; and Tier Three are words limited to a specific domain (e.g. dog, hound and canine; sad, unhappy and melancholy). In theory, these are not set lists, but rather criteria to use when evaluating the academic language that is present in literature used classrooms. Coxhead (1998) provides an alternative approach that combines frequency and dispersion in her *New Academic Word List*. Her 570 word families were found to be common across academic disciplines, and appeared at least 100 times across the texts being analyzed. These approaches to identifying academic words and the frequency in which they appear are used as the basis for direct or explicit instruction of the words. Their intended use in curriculum has been furthered with online programs developed in tandem with research efforts, that identify the academic words in text the user pastes in. Users can then explicitly teach words that are identified in instructional texts (Lawrence, Crosson, Paré-Blagoev, & Snow, 2015).

## Constructs Affecting Reading

As children progress through school, they are expected to become more independent and successful readers. This assumption can become crippling to children as the expectations to draw more knowledge from independent reading of texts increase from grade to grade. If children continue to find themselves behind their peers, they are more likely to develop feelings of low self-efficacy, first about reading, then school, and possibly even academics in general (Covington & Dray, 2002). Thus matters of motivation and engagement become crucial mediators of reading development as students acquire learning identities that either do or do not include a sense of themselves as committed readers.

**Motivation and Enjoyment**

There is a dire need to reengage our students in reading (Guthrie, Alao and Rinehart, 1997). The National Assessment of Educational Progress (1994) found that the typical middle school student spent five minutes a day reading for their own interest, with only approximately 10% reading 30 minutes per day. They noted that most students don't spend any time reading for fun (Guthrie, Alao and Rinehart, 1997). Further, PISA data collected in 2010, across 64 countries documented that 37% of students internationally did not read for personal enjoyment

(Gambrell, 2011). Therefore, it is imperative to support and develop multiple opportunities to help generate motivation for reading (Gambrell, 2011) both in and out of school.

Developing reading ability is a primary focus of current elementary school practices. However, increased skill is not necessarily accompanied by increases in enjoyment of reading, engagement with reading and motivation to read; these latter constructs are not typically promoted effectively in a general education classroom.

Enjoyment of reading is measured by a person's intrinsic motivation to read (Guthrie, Wigfield & You, 2012). Reading motivation is a person's unique goals, values and beliefs about reading and "the topics, processes, and outcomes of reading" (Guthrie & Wigfield, 2000, p. 405). When motivation for reading —a multifaceted construct—is further investigated, it is typically divided into extrinsic motivation and intrinsic motivation. Extrinsic motivation is primarily driven by an individual's valorization of a reward or prize to be received upon completing an activity (Gavigan, 2010). Conversely, intrinsic motivation is driven by two prongs: a) an individual's personal interest, curiosity or desire to learn from reading (Deci & Ryan, 2000; Eccles 2005; Gavigan, 2010); and b) a personal enjoyment and pleasure derived from reading (Eccles 2005; Eccles, Wigfield & Scheifele, 1997). Both of these will lead to engaging in reading whenever it is possible and appropriate to do so (Guthrie & Wigfield, 1999), typically at a higher frequency than their peers who are not intrinsically motivated to read (Anderson & Pearson, 1984; Wigfield & Guthrie, 1997).

These two prongs have been summarized as 'Self-Concept as a Reader' and 'Value of Reading' for assessment purposes through the Motivation to Read Profile and the subsequent Adolescent Motivation to Read Profile (Pitcher, et al., 2007). Yet, in the Intrinsic Motivation Inventory (Ryan, 1982) the intricacies of intrinsic motivation were fleshed out in the longer measurement tool, which has been used for studies of intrinsic motivation across areas of developing skills spanning from reading (present study) to an intervention for developing basketball player's free-throw skills (McAuley, Duncan and Tammen, 1989). As we become better at measuring intrinsic motivation, we may become better at developing interventions that begin to increase intrinsic motivation for reading both in and out of school.

This means that the more a person is internally motivated to read, the more enjoyment they derive from reading, and are thus more likely to continue engaging in reading. It is proposed that across the world, the enjoyment a student gets from reading—or reading "for fun"—is positively linked with reading achievement (Twist, Sainsbury, Woodthorpe & Whetton, 2003; Twist, Schagen, Hodgson, 2006). Guthrie, Wigfield and You (2012) believe that feelings of engagement with reading help develop the skills needed for reading comprehension, that are later reflected in reading achievement. Engagement is a reflection of a motivated action (Guthrie, Wigfield & You, 2012; Skinner, Kindermann, Connell & Wellborn, 2009; Skinner, Uzilov, Stein, Mungall, & Holmes, 2009). Beyond the academic, engagement in reading also aids students to appreciate their existing social networks within a classroom and in their communities creating tangible connections to their existing, prior knowledge (Gee, 2008; Guthrie, 2004).

When students are not motivated, or engaged, they will struggle with learning and will often present as inattentive to their teachers (Guthrie, Alao & Rinehart, 1997). Further, in schools, higher intrinsic motivation for reading has been linked to higher achievement scores on standardized tests (Gottfried, 1990) as well as grades in school (Guthrie & Wigfield, 1999). When a student is presented with a challenge in reading, as students often are in school, motivation to read must be present to overcome the challenge. Students who have higher

intrinsic motivation for learning or reading show more persistence at a task especially when tasks are cognitively demanding, as can be the case in many academic settings and may invest more effort in completing a task (Deci & Ryan, 2000; Logan, Medford & Hughes, 2010; Wolters, 2003). Therefore it is by increasing motivation and enjoyment that educators have the most leverage to impact their students' learning of standards and skills (Bitz, 2004)

Motivation energizes and directs behavior (Eccles & Wigfield, 2002). Yet is important to note that these are not static beliefs and a person's intrinsic motivation for reading is malleable and can be environment or text dependent. Motivation to read is therefore at least partially dependent on a person's feelings of reading self-efficacy at a moment in time.

**Self-Efficacy**

Self-efficacy refers to the belief about one's capabilities to learn or perform behaviors at designated levels; its positive correlation with academic achievement is one of the most enduring findings in the motivational literature (Bandura, 1997). Self-efficacy is enhanced when students perceive they are performing well or becoming more skillful (Schunk & Pajares, 2002). Thus, if children never or rarely feel as though they are performing well in school, not only are they more likely to cease trying, but they are also more likely to develop low overall academic self-efficacy (Covington & Dray, 2002). Academic self-efficacy has been found to be an important factor for understanding academic achievement in adolescents (Usher & Pajares, 2006).

**Transportation and Engagement**

In order for students to comprehend a text, they must be actively engaged with the text, so that they can retain information as they are decoding from print into their short-term memory. A student's literary processing skills must be sophisticated in order to engage in language functions such as inference and prediction. Although not commonly listed as an explicit language skill that leads to literacy, engagement is required in order for the student to be able to figure out what an unknown word may mean in context. However, disengaged readers have a higher risk for becoming poor readers (Gavigan, 2011). Transportation, a relative newcomer to the motivation and engagement literature, provides additional nuance regarding how readers identify with texts.

Engagement with reading and transportation into a narrative, have several overlapping traits but are not measured the same way. Transportation is "the extent to which individuals are absorbed into a story or transported into a narrative world…[which is] a distinct mental process, an integrative melding of attention, imagery, and feelings" (Green & Brock, 2000, p. 701). This feeling is that which one experiences when they are lost in a story or carried away by a narrative, and may lose one's grounding in reality (Green & Brock, 2000; Nell 1988). In comparison, although engagement may also be linked to attention, transportation demands the reader engage with the narrative more deeply, with psychological impacts, typically beyond the end of the narrative. For example, a person who has experienced high levels of transportation in a narrative in which the protagonist is not triumphant may engage in independently creating hypothetical alternative endings to the narrative in which the character was victorious. Therefore, it has been noted that this could be considered being 'fully engaged' (Green, Brock & Kaufman, 2004). Yet, conversely, it has also been argued that if a person is not engaged with the narrative, there is no chance for transportation to take hold (Busselle & Bilandzic, 2009). Further, people who have experienced a high level of transportation during a narrative are more likely to 'return' from the transportation changed by the experience (Green & Brock, 2000).

The first transportation scale was developed by Green and Brock (2000) in which 15 Likert items were developed to tap into cognitive aspects and emotional-affective aspects as well

as four items to measure imagery specific to that text (explicit questions about how vivid of an image they had for characters specific to the text). At its initial calibration, women reported higher levels of transportation when compared to their male counterparts, yet the researchers discovered that this trend could be reversed with the subject-matter of the text provided to the participants. Although the bulk of this research that is relevant for literacy focuses on transportation in a narrative setting, it is important to note that this is possible with fictional and nonfictional narratives, storytelling, advertisement, and across many other meaning-making modes and mediums.

In subsequent studies it has been found that a crucial element of enjoyable media (narrative of some type) was the ability to transport the consumer to a story world (Green, Brock & Kaufman, 2004). Further, these scholars believed that this was an enjoyable and desirable state that was sought out by a consumer or reader. Due to the fact that from early childhood, people are drawn to narratives (Green, Brock & Kaufman, 2004), and people may benefit from transportation by learning to think from multiple perspectives as well as learning how to plan ahead through hypothetical experiences (Leary & Buttermore, 2003). Transportation has been highly correlated to enjoyment of a narrative (Bilandzic & Busselle, 2006; Green, Brock & Kaufman, 2004), and as previously discussed, enjoyment of an activity is one of the many factors of intrinsic motivation. Further, as engagement in a narrative experience increases, it should logically be predicted that so will enjoyment, and therefore transportation as well (Busselle & Bilandzic, 2009).

**The Impact of Engagement Indicators on Comprehension**

All of these constructs are necessary to develop a life-long reader, however, they are difficult to measure and even more difficult to promote in a classroom. The comprehension of a text is the ability to access the content through reading and then create new understanding from the text (Anderson & Pearson, 1984). It is proposed that students do not 'accidently' or passively comprehend texts, but rather they must be motivated to do so and therefore students' motivation for reading directly impacts their ability to comprehend a text (Cordova & Lepper, 1996; Guthrie & Wigfield, 1999). The relationship between motivation for reading and text comprehension has been closely explored and many links have been found (e.g. Baker and Wigfield, 1999; Logan, Medford & Hughes, 2010; Taboada, Tonks, Wigfield & Guthrie, 2009). Further, a causal and predictive correlation between motivation for reading and reading comprehension has been reported (Guthrie & Wigfield, 1999). However, it appears that the impact of motivation on reading comprehension may disproportionally, and more profoundly, affect readers with low existing reading ability when compared to their peers with higher pre-existing reading ability (Logan, Medford & Hughes, 2010).

Since the early 1960s there has been a documented gap between male and female readers (Gavigan, 2010). These studies, repeatedly have found that young women are better able to develop reading skills when compared to their male counterparts. Many scholars have investigated this existing gap, and some have begun to link it to intrinsic motivation for reading. When using the Motivation to Read Profile it has been found that average achieving third-grade boys and girls both have strong self-concepts as readers, but girls find more value in reading than their average-achieving male counterparts, which leads to these boys reading less (Marinak & Gambrell, 2010).

When inspecting transportation, it seems that there are some links between narrative understanding and enjoyment. Further, in studies, narrative understanding has been correlated with transportation (Busselle & Bilandzic, 2009). Therefore, the potential for understanding of

the text is increased as enjoyment of the text and transportation increase. Yet it is unclear how the psychosocial mechanisms of intrinsic motivation may be impacted with the shift in enjoyment and subsequently transportation.

**Multiple Literacies**

In 1996, the New London Group (The New London Group, 1996) published about the need to legitimize a broader view of what literacy was. This group of scholars suggested that there were five different modes of literacy (Visual, Linguistic, Audio, Spatial and Gestural), but that each of these modes could interact with other modes to create meaning. The New London Group additionally believed that what each reader brought with them from their unique linguistic and cultural contexts interacted with the mode(s) presented and this interaction created meaning for the individual. This shift in thinking impacted discourse by redefining and revaluing different modes of designing meaning as well as acknowledging the interaction each individual's experience brought to create meaning. The New London Group (Cazden, et al., 1996) called attention to the intersection of multiple linguistic modes and unique cultural contexts as the locus of meaning making.

Through this new perspective of meaning making and discourse, alphabetically written and spoken language become only one of the possible modes to communicate meaning (Albers & Harste, 2007) and were no longer granted a privileged position among the modes (Kress, 2008). The many possible modes of making meaning are impacted by culture and a group's shared knowledge (Albers & Harste, 2007). The many modes can be used symbiotically and simultaneously to create meaning in a single narrative (Connors, 2012); and the ability to integrate the multimodal information is what makes one literate (Connors, 2012; Walsh 2006). Further, communication is becoming increasingly an intersection of two or more modalities (e.g. Hull & Nelson, 2005; Jewitt & Kress, 2003), and it is becoming clear that multimodality is more than the sum of the two or more modes and that it allows for greater meaning making (Boerman-Cornell 2016; Lemke, 2002).

**Visual literacies.** Technology is making multimodality increasingly available through the popularity of memes, gifs, emojis and other digitally-based basic communication. The majority of today's students are digital natives, who have become accustomed to an environment that is perpetually visually rich. They understand that visuals can communicate instantly and universally (Metros, 2008). This is causing today's 21st century adolescents to also become fluent in multimodal meaning making and to become multimedia learners (Flynt & Brozo, 2010; Gavigan, 2010; Metros, 2008). This causes a mismatch with the traditional alphabetic texts still present in our schools. Students may be looking for their school texts to have the similar visual stimulation and impact as television and video games which comprise their out of school literacies (Bucher & Manning, 2004). As students continuously develop unique, multimodal literacies out of school, these should be embraced by teachers and given legitimacy to encourage authentic learning and meaningful exchange (e.g. Alvermann, 2008; Hull and Schultz, 2002; Mathews, 2011).

In a post-New London Group era, text-creators must be conscious of how the written works they create, utilize and convey meaning through the many modalities available to them (Albers & Harste, 2007). Visual literacy is the ability to create a meaningful visual message through encoding and composing as well as the ability to decode and create meaning from a visual message (Metros, 2008). The visual syntax is made up of not only written language and images but also visual design —or how a work is composed or formatted (Al-Yaqout & Nikolajva, 20l5; Duffy, 2016; Jewitt, 2004; Wolfe &Kleijwegt, 2012). Further, there is very

little meaning that can only be conveyed through one mode of visual literacy, particularly when examining written text and images (Kress, 2008). However, the explicit teaching of the combination of these visual modes is an area of education that has typically been relegated to Art, due to the focus on alphabetic-literacy texts in the classroom (Metros, 2008).

There is a necessary synergy between text and image in picture books, and the potential exists for additional complexity demands on readers due to the multiple possible placements of the image and the text (Boerman-Cornell, 2016; Sipe, 2008). Yet, despite the potential for additional cognitive demands, most readers experience enhanced comprehension and memory when drawing meaning from more than one mode (Boerman-Cornell, 2012; Pressley, 1977). Therefore, the combination of written text and images can aide students in comprehension, especially when the alphabetic text is complex (Wolfe & Kleijwegt, 2012). Works like the decades-old Classic Comics relied on the premise that the visual appeal may draw in otherwise hesitant readers and create a motivational pathway to reading (e.g. Anderson & Styles, 1999; Bitz, 2008; Eisner, 1974; Goldstein 1986). This premise is based on the idea that if a reader is not drawn in by the alphabetic text, there are another modes (image and design) that may appeal to them and pull them into the narrative.

**Multiple visual literacies and graphic novels.** Prior to the developments in possible multimodality of literacy spearheaded by the New London Group, the graphic novel format was primarily seen as an overly simplified format due to its proportionally minimal amount of alphabetic text—the privileged mode of education (Duffy, 2016). Graphic novels employ visual literacies (Fletcher-Spear, Jenson-Benjamin & Copeland, 2005) and function by combining three of the possible modes of visual literacies—written text, image, and the layout/composition. It was in part due to this shift in interpretation of meaning making that graphic novels and comic books have experienced the growth in research that they have to date.

As previously discussed, graphic novels and comic books are juxtaposed image and text that is sequentially ordered to create meaning (McCloud, 1993). Through this format, the three previously discussed visual literacy modes (written text, image, and the layout or composition) are inextricably fused together to create meaning (Cromer & Clark, 2007; Kalantzis & Cope, 2000; Mackey & McClay, 2000; Versaci, 2008). These modes have been brought together deliberately and become semiotic in their communication of meaning (Kress, 2003). Therefore, reading a comic book or graphic novel is inherently different than reading traditional alphabetic text prose (Moeller, 2016). This format requires readers to not only make meaning from the text and images provided (as well as the matching or incongruent meaning between image and text), but also asks readers to weed through the design elements to draw additional meaning simultaneously (Serafini, 2011).

Behler (2006) has suggested that the graphic novel format might be an ideal format to cater to students' growing affinity for visual media over written media. This is due to the seamless and interdependency of the visual and the written employed by graphic novels. Comics and graphic novels are not an exclusively prose medium such as traditional text, nor an exclusively visual medium such as film. Wolk (2007) concluded that graphic novels are also not a text-driven medium that has had pictures added to it, rather they are their own format and medium.

The ability to make meaning from graphic novels is learned, and it requires readers to slow down from their text-only reading pace to allow for re-reading of a panel or text. This requires readers to have a high amount of cognitive engagement, yet this has not been shown to translate into increased difficulty for high school students (Hammond, 2012). This rich and

multilayered format creates the opportunity to redefine what is considered literature and what makes a novel (Baetens, 2008; Cromer & Clark, 2007). Due to the multiple layers and modes used, the format places extra textual demands on the reader (Darda, 2013). The format has creatively explored the many forms of integrating written text and the graphic image in innovative, thought-provoking and entertaining ways that have attracted readers who are increasingly drawn to images as part of their visual literacy (Martin, 2011).

These three modes of visual literacy come together in different stylistic forms to communicate meaning, yet the absence of one of these modes for any span of the narrative, be it a panel, a page or a series of pages, may highlight the importance of alternative meanings or create entirely different meaning. The internal structure of the text, as well as the design of the images and the composition, cause a tension or flow that can convey its own additional meaning (Baetens, 2008). Despite their combined synergistic union, it is interesting to examine these three visual literacy modes that contribute to graphic novels independently.

***Written alphabetic text.*** The written prose of the graphic novel is crucial for establishing shared meaning of the images. The text often sets the stage and the roots for the creative and additional meanings that the image and composition add to it. The lettering of a text can be treated graphically (e.g. hand-lettering, despite being text, can also take on and convey meaning as images simultaneously) and used to convey an additional layer of meaning and complexity to a graphic novel (Eisner, 1995).

***Image***. The images used in a graphic novel are co-creators of meaning and may function as depictions of written words, or independently of the text (Baetens, 2008). Beyond the complexity of the text used in a graphic novel, the artist and designer of a graphic novel is also conveying meaning through a complex union of: nonverbal facial & body expressions as well as symbolic meaning, metaphor and the complexities of word-image relationships (Connors 2012, 2015; Cromer & Clark, 2007; Goldsmith 2002; Simmons, 2003) as well as the choices in color (Connors, 2012); perspective, (Connors, 2015); timing, imagery, use of symbols (Eisner, 1995) and the organization of images and information (Cohn, 2014). These aspects can be especially communicative quickly because humans are able to process images 60,000 times faster than they can process text (Falter, 2017). This allows for the image to provide substantial meaning quickly and effectively without detracting from the general enjoyment of the text.

***Compositional design.*** The composition, perspective and visual symbols available to choose from for a graphic novel are varied and make up the visual design mode of a graphic novel (Serafini, 2011). Art Spiegelman, and Scott McCloud both explain that each of the pages in a graphic novel present the author and artist to new opportunity to convey space and time as they wished through their pacing and sequence. Due to the many layouts, shape and size possibilities of panels, or the exclusion of panels all together, the skeletal design of a page inherently created meaning for a reader. No two pages of a graphic novel must be organized or drawn in the same way unless doing so creates a desired meaning (Bernstein, 2008). Further, an author or illustrator may choose to communicate meaning by having text or image absent from a page, or may choose to utilize a different type of thought or speech bubble to convey additional emphasis or meaning.

**Multiple Literacies Synergy: Graphic Novels**

When these three modes of visual literacy are brought together such additional meaning is created that Cohn (2014) proposes the need for a Visual Narrative Grammar theory to understand how the rich features of a graphic novel create more meaning that that which is explicitly communicated by any one of the modes utilized. Further, he believes that the

conventions and symbols used in the format (e.g. the lines behind a depiction of a woman equate to running) are a developing language beyond the alphabetic one expressly used unique to the format (Cohn, 2014).

Since the dissemination of the New London Group's ideas on multimodality, graphic novels have been touted as a perfect example of this multi-modal literacy, and encouraged to be included in schools (Gillenwater, 2009; Moeller, 2011; Schwartz, 2002) where alphabetic literacies have historically been privileged in the traditional education system (Thomsen, 2018). Yet, these evolving and growing literacies have become a requirement in school and are becoming accepted as crucial parts of academic development across the disciplines of history, literature, science, and mathematics. The multimodal nature of the format has led to literacy educators advocating for the use of graphic novels in schools as part of curricula (Connors 2012). The format is being recognized in the literature as an educational tool that could support educational pedagogy (Connors, 2010) and enrich curriculum (McGrail & Rieger, 2016). Common Core Standards Initiative (2010) explicitly calls for alternative texts that may include graphic novels to become a part of a modern education (McGrail & Rieger, 2016). The 2008 group developed a position statement for the National Council of Teachers; a major tenet of that statement is that multiple literacies are demanded of students in the 21st century for these students to be truly literate. Graphic novels are proposed as a way to support the development of 21st-century literacy skills (Falter, 2017). Graphic novels promote not only sequencing development, but also how to make meaning by combining traditional text and engaging images.

Further, many links are drawn between the multimodality of graphic novels and the visual literacy desires of students currently in schools. The modern age is one in which students live in a heavily visual culture, where students consume an overwhelming number of images (Thomsen, 2018). It is thought that the graphic novel format may particularly appeal to current students who are especially equipped to learn best from the format due to being a part of a visual generation fostered by their digital native status (English, 2012; Gorman, 2008; Robbins, 2014). Due to the multimodal parallels between the Internet and graphic novels, this format may be easier for current students to access when compared to traditional text-only prose (Versaci, 2008). In particular, the graphic memoir is thought to appeal to adolescent students most due to similarities to social media stories (e.g. Facebook, Instagram, Snapchat, Twitter) a person may post about themselves, utilizing multiple modes of visual meaning making believing that the images add candor and reality to the story (Robbins, 2014).

Graphic novels are both fixed and fluid by nature (Mackey & McClay, 2000). Their sequencing and image progression provide an additional layer of movement in time and space that traditional text-only narratives do not come by as easily. Recent critiques of the format include this instability of the text. The ability to fluidly move through space & time, between, and at time, within panels creates complexity beyond that presented by tradition, text-only narratives. This adds a layer of difficulty and possibility of confusion to the reader, which may cause the word-image relationship to become fractured (Darda, 2013), especially when combined and executed poorly. Yet many say this fluidity is the format's strength (Chute, 2008; Darda, 2013; Davis, 2005; Hatfield, 2005). This allows for readers to experience a narrative multiple times at varying speeds. This modality has been compared to reading hypertext, which is also fluid and fixed (Mackey & McClay, 2000). This fluency in polysemic forms of texts is another reason that it is proposed that young readers may be attracted to the graphic novel format

## English Language Learners

In the United States, almost 20% of the population speaks a language other than English in the home—roughly 55.4 million people. An analysis of the 2010 Census Bureau report showed that in the United States, from 1980 to 2007, the population five years and older that spoke a language other than English in the home increased by approximately 140% (American Fact Finder, 2011; Shin & Kominski, 2010). Within this segment of the population, nearly 11 million are 5-17 years old, with an unreported number of children in this category younger than five years of age. California is the most densely populated state of ELLs in the U.S., with approximately one-fifth of the national non-English speaking population (14.4 million). This is a higher population density than the next two states combined (Texas, 7.4 million & New York, 5.2 million). Within the general population of the state of California who are 5 years of age and older, 42.6% report a language other than English spoken in the home (American Fact Finder, 2011).

There have been many labels placed on students who do not speak English as a primary language. Many of these labels are politically and socially charged, invoking strong feelings of discrimination from some groups. For the purposes of this study the denoted groups of: Limited English Proficiency (LEP), English as a Second Language (ESL), and Language Minority (LM) will be encompassed in the term ELLs. This group includes children who have recently immigrated to the U.S., as well as children born in the U.S. but who primarily speak a language other than English at home. As a consequence of the evolving nature of educational policies, some of the previously mentioned terms have become charged due to their usage in political campaigns and educational movements. In the United States, ELLs are the fastest growing population of students in schools (de Cohen & Clewell, 2007), and this trend does not appear to be slowing in the near future (Passel, 2007).

These students are identified as ELLs through varying processes. Typically, parents are asked to identify the home language or primary language when enrolling a child in public school. If this reported language is not English, the child will be tested for English proficiency in accordance with the U.S. Supreme Court ruling in Lau v. Nichols (1974). Despite this federal ruling, each state has a different measure for determining English language proficiency, and therefore, a different threshold for initiating ELL specific education. If the child is found to not be English proficient (as defined by the state of residency), the child is entitled to receive school-services to support the acquisition of the English language (American Psychological Association, Presidential Task Force on Educational Disparities, 2012), yet—unlike the state-specific mandated assessment—the scope and depth of these services are determined by local school districts, and can even vary by school within a district.

Despite how ELL students are normally portrayed in the majority of the literature, they are not a homogeneous group. In fact, there exists vast sub-group diversity separating its members by variables such as; place of birth, home language, home language fluency, age of immigration, education prior to enrolling in the US, cultural differences, and prior schooling experiences (Genesee & Lindholm-Leary, 2012). The largest of these groups is the Latino/Hispanic subgroup (Kindler, 2002). However, there are pervasive gaps in achievement between students who have been identified as ELLs and non-ELLs at both the national and state levels (Abedi & Dietel, 2004; Kim & Herman, 2009). ELLs have been found to have standardized test scores 20 to 30 percentage points lower than those of their non-ELLs peers in both English Language Arts and Mathematics, and this gap is not reduced over time (Genesee & Lindholm-Leary, 2013). Using the National Assessment of Educational Progress, the most

recent 2011 data shows that in fourth-grade reading scores, 70% of ELL students scored "below basic" in comparison to 30% of their non-ELL counterparts (National Center for Education Statistics, 2011b). Similarly, in mathematic scores, 41% of ELLs scored "below basic" in comparison to non-ELLs, 15% " of whom scored below basic" (National Center for Education Statistics, 2011a). Duran (2008) found that ELLs also fare poorly on outcomes other than standardized test scores, including attendance, dropout rates, and grade point averages in comparison to their same-age peers.

Socioeconomic status (SES) is a multi-dimensional construct that is composed of financial capital, human capital and social capital (Entwisle & Astone, 1994). The three main indicators of SES are parental income, parental occupation, and parental education (Sirin, 2005). Low SES typically has a significant, negative influence on a student's development (Hart & Risley, 2003; Kovenlman et al, 2008; Lee, 2011; McLoyd, 1998). Learning and developmental challenges particularly manifest in all low SES children's language development. Beginning in infancy, low SES limits a child's exposure to complex language, stimuli and events that are vital for future school success (Kuhl, 2011). This reduced exposure to literature and language stimulation directly affects later academic achievement (Lee, 2011).

Children in low SES homes hear half as many words per hour as children in middle and high-SES homes, and they have relatedly smaller vocabularies with slower gains of new words into their lexicon (Hart & Risley, 2003). Hart and Risley (2003) found that over the course of a low SES child's first four years, he will have been exposed to 30 million words less than his high SES counterparts—as a factor of SES not home language. As children from these homes enter mainstream schools, their lack of exposure is compounded with their existing ongoing challenges due to their family's low SES. This combination handicaps them in comparison to their same-age peers, who have been exposed to and benefitted from early literature and language development throughout their formative years. These early differences are difficult to overcome once in school. Initially, the differences most clearly emerge in limited oral language skills and slower phonetic learning (Kuhl, 2007), both of which have been shown to impact later reading acquisition (Kovenlman et al., 2008). A lack of domain knowledge further limits the academic development of low SES students and the drop becomes steeper as these students progress to more detailed and specific topics (Hirsch, 2003).

SES often confounds research in ELL education. There are many other variables that have been shown to have high interaction effects with low SES and add to the risks ELL students in particular are exposed to (e.g. American Psychological Association, Presidential Task Force on Educational Disparities, 2012; Hart & Risley, 2003; Kovenlman et al, 2008; Kuhl, 2011; Lee, 2011; McLoyd, 1998). Due to the extreme diversity within the grouping of ELLs, there is no single narrative that captures the scope of the additional risk these students are exposed to. However, consider that in addition to these low levels of all language due to low SES, a child from a dominantly Spanish-speaking home enters school with even less exposure to the English language in particular (American Psychological Association, Presidential Task Force on Educational Disparities, 2012). As children continue to find themselves behind their peers, they are more likely to develop feelings of low self-efficacy, first about reading, then school, and possibly even academics in general (Covington & Dray, 2002). Academic self-efficacy has been found to be a mediator for academic achievement in adolescents (Zimmerman, 2000). Thus, having a low SES handicaps a student's academic achievement before enrolling in school—as well as during their time in school.

## The Present Study

Despite the boom that comics and graphic novels are experiencing as a format, and the increasing amount and quality of research in the field, there has been little in the way of well-curated, quantitative data on the educational benefits of this literary format conducted in the classroom (Danzak, 2011). Further, although initial positive findings in the literature—particularly around increase in the amount of reading occurring—it cannot be assumed that comic books and graphic novels are a miracle cure for closing the growing gap in reading achievement in the US. Yet, the format may be a powerful resource for teachers and parents to use to spark student interest and learning, and thus also influence their engagement, motivation and enjoyment of reading (Botzakis, 2009). Thus, it is with tempered enthusiasm that this study was proposed.

More narrowly, the existing gap in the literature is the link of how graphic novels can be a part of a language-learning curriculum while also increasing motivation for reading (Crawford, 2004; Cromer & Clark, 2007; Kutch, 2014). This study proposes to fill this existing gap in the empirical literature. Due to graphic novels' inherent enriched context, and high interest, the format creates an ideal platform for acquiring new vocabulary (Smetana, 2010). The power of the graphic novel format is embedded in the power popular culture has over adolescents (Alvermann, Hagood & Williams, 2001). A plausible hypothesis is that the appeal of a format so popular with youth may motivate them to read with greater engagement and attention, thus improving their comprehension and attention to the details and nuance of the text, and enabling greater incidental acquisition to vocabulary that they would otherwise gloss over. For example, Lau (2009) has found that 11-18-year-olds' intrinsic motivation and social motivation predicted the amount of reading students engage in. Through this same format a student's self-efficacy for reading can be increased as they become more fluent and intrinsically motivated.

Due to the fact that graphic novels are perceived by young readers and adolescents as authentic, relevant, clear, and engaging, they provide a robust context for the reader to read with an eye toward detail and nuance—the very stance that can lead to the acquisition of word meaning. Stated in more explicit terms, the theory of action of this study is that graphic novels are highly engaging for adolescents, particularly for those who seldom experience success in school. Engagement propels close reading and attention to text, which in turn increases "noticing" how particular words, particularly target academic vocabulary words, are used to drive the story. This noticing helps students connect word usage to their existing stores of knowledge which, in turn, increases the likelihood that they will infer the meaning of any given word, particularly words that are in the academic register that characterize fiction and non-fiction selections in secondary schools. A residual side benefit may be that students' self-efficacy increases because they feel "abled" by their sense of independence. This study aims to answer three primary guiding questions:

1. Does the graphic novel format, compared to the conventional, text-only script format, reveal reliable differences on measures of:
    a. Vocabulary incidentally learned while reading?
    b. Reading motivation?
    c. Reading engagement/transportation?
    d. Reading comprehension?
2. Are the effects of the format on any of these variables different for English language learners compared to their English-only peers?

3. Do motivation, transportation, and reading comprehension mediate the relationship between format and vocabulary learning? And is any mediating effect consistent across formats and learner status categories?

# Chapter 2: Methods

## Overview

The purpose of this study was to examine the impact of presentation format on the incidental acquisition of vocabulary while reading a play of the sort traditionally assigned to high school students. Tenth-grade students were exposed to two Shakespeare plays (*A Midsummer Night's Dream* and *The Tempest)* in two formats—a graphic novel format or a traditional script-text format. Pre-and post-reading targeted vocabulary tests measured any incidental vocabulary growth resulting from the exposure to the plays. Existing targeted academic vocabulary (pre-test) was measured roughly a week prior to the activity in which students read a text and took the post-test. Additional intrinsic motivation and reading self-efficacy measures were used to examine the effects of both formats and plays on the students' affective dispositions. This comparative study was designed to answer the following questions:

1. Does the graphic novel format, compared to the conventional, text-only script format, reveal reliable differences on measures of:
    a. Vocabulary incidentally learned while reading?
    b. Reading motivation?
    c. Reading engagement/transportation?
    d. Reading comprehension?
2. Are the effects of the format on any of these variables different for English language learners compared to their English-only peers?
3. Do motivation, transportation, and reading comprehension mediate the relationship between format and vocabulary learning? And is any mediating effect consistent across formats and learner categories?

**Setting and Participants**

A public high school in Northern California was selected for this study because it was populated with high levels of ELL students (according to publicly available data from the State of California's Department of Education, School Accountability Report Cards). Teachers from all but two of the 10$^{th}$-grade English classes volunteered to host the research study in their classes. This allowed for a cross-sectional sample of the entire range of 10$^{th}$-grade students at the school, included students in remedial English, advanced or GATE courses, and Special Education students who were enrolled in general education English courses.

Nine classes were included in this sample, with 265 students returning parental consent and student assent. Of these nine, seven were general education classes with no pre-requisite courses outside of completion of English 9. The remaining two classes were a GATE course (which required GATE identification to enroll) and a *Puente* class. In the United States, *The Puente Project* supports classrooms that aim to increase the rate of educationally disadvantaged students who attend college. This effort is initiated by students self-select into this track of courses. They are asked to be interested in going to college and in learning about Latino culture. In addition, students must have a 2.0 GPA or higher to remain in the track. Within each class, all students were given equal opportunity to participate by returning parental consent and student assent. Students enrolled in special education, with IEPs that included inclusion in a General Education setting for English Language Arts as per Least Restrictive Environment were not identified as a subgroup due to FERPA.

The demographics of the 265 participants reflected the entire range of school demographic data with respect to gender, ethnicity, intellectual ability, and home language. Of

the initial 265 students for whom data were collected, only 238 were included in this study due to missing data. Of this included sample, 106 identified as female, 129[1] as male and 3 as non-binary. Further, 28.3% of the participants identified as Latinx; 22.3% as Chicano/Mexican-American; 14% as White/Caucasian; and 7% as African American. The average self reported overall GPA for this sample was a 3.12 on a four-point scale.

**Research Design**

Prior to assigning students to one of these two format conditions they were matched based on pre-test vocabulary ability, as measured by the Gates-MacGinitie Reading Test, Vocabulary Extended Scale Score (samples of this assessment provided in Appendix A). A matched-pair, as opposed to a random assignment of individuals, design was utilized to assign students to format condition. The logic behind this decision was to achieve as precise a level of control over the distribution of pre-treatment vocabulary ability-knowledge as possible as efficiently as possible across the primary variable of this research on text presentation format.

All participants were given the Gates-MacGinitie Reading Test over the span of two class periods (one subtest per period), in addition to completing a self-report on their demographic information and completing passage specific pre-tests. All the participants' scores on the Gates-MacGinitie Reading Test were then ordered from highest to lowest (in the descriptive figure below, the descending order of the students by their score is designated with descending alphabetical participant designations A-L). Because of the more granular reporting provided by the Extended Scale Scores, no two students had exactly the same numerical score. Pairs were created by matching the top two scoring students (creating pair 1), the third and fourth highest scoring students (creating pair 2) and continuing this pattern for all 265 students. This process yielded 132 matched-pairs. Once all the students had been paired as closely as possible based on pre-treatment scores on the Gates-MacGinitie, each pair was split and randomly assigned to the format condition (graphic novel or traditional script) that they would encounter **first** in their reading. This was achieved by randomly assigning one student from each pair to the graphic novel format and requiring that the remaining member be assigned to the script condition. This methodology created two, pre-existing vocabulary ability matched groups from the student participant sample: GN-first and S-first.

Within each of the two format first groups (GN-first and S-first), each student was randomly assigned to a play to read first in that format. Once these groups were formed, a combination of the principles of random assignment and counter-balancing were employed to achieve an unbiased assignment of students to a) format, b) play, and c) order of reading format-play combinations (see Figure 1 for a complete accounting of this process). The result was that a quarter of the students read each of the four play-format combination first (e.g., *The Tempest* as a graphic novel, *The Tempest* as a script, etc.). Upon completing the first assigned text, students were assessed for vocabulary growth, comprehension, and intrinsic motivation for that specific play reading regardless of format. Several days later, the second play was provided to each student in whichever format had not been originally assigned. Such a design equally distributes the impact of previous vocabulary knowledge, thus allowing the results to more directly reflect the primary variable of interest—format. This design is graphically summarized in Figure 1 below.

[1] Two students offered responses not in alignment to the question asked, and thus the researcher used judgment to assign response.

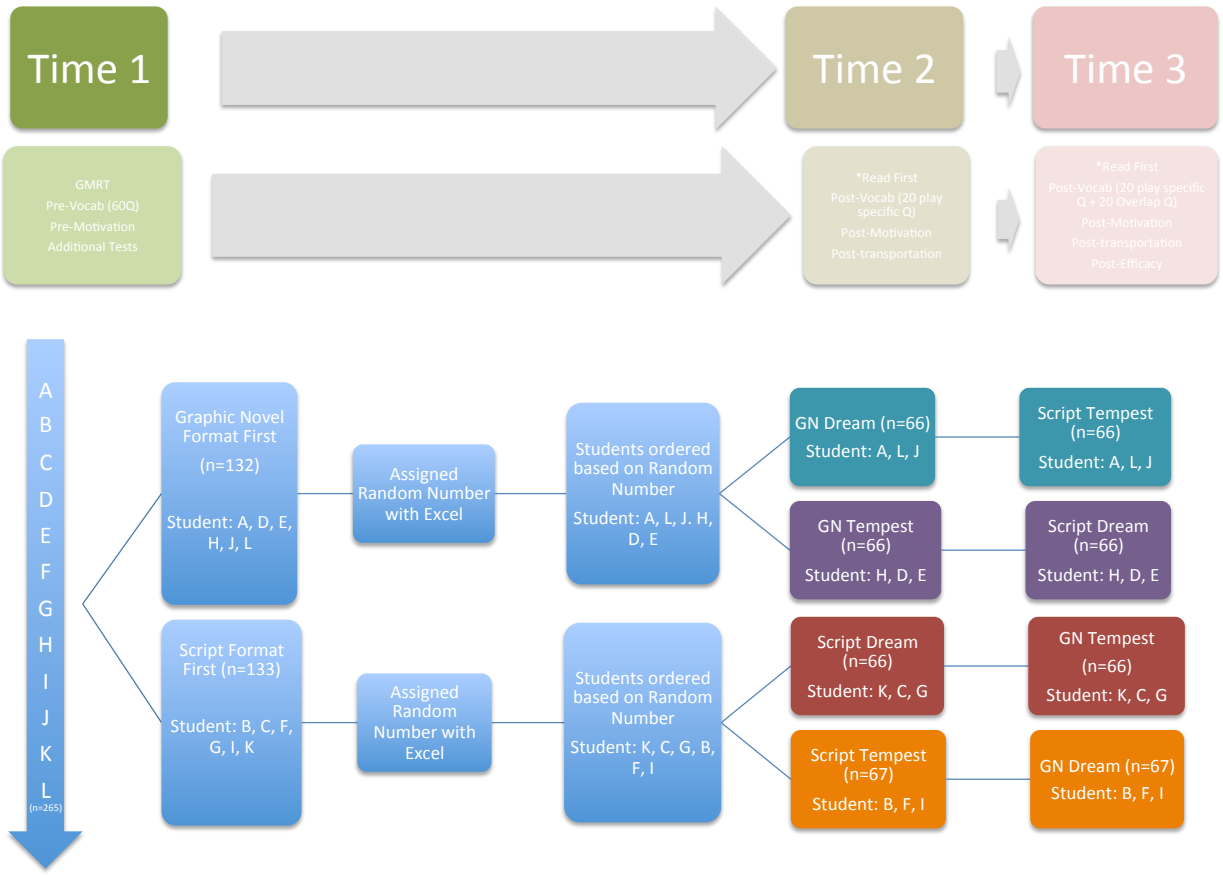


Figure 1
*Data Collection Plan*

*A priori* power analysis showed that a sample of *102* is necessary for each of the groups of interest (Primarily English and ELL) for this study to provide sufficient data for robust, meaningful analysis (statistical power of 0.8, and effect size of 0.5) across the two format conditions. Because the study was conducted in a public school setting on a strictly voluntary basis, oversampling by an additional 15% was enacted to ensure that absences did not impact the power of the study. The third research question required targeting two cohorts of students, a "Primarily English" cohort, or English Only and an English Language Learner cohort, totaling a minimum of 234 subjects. The cohort assembled for this study was made up of 265 students to ensure statistically meaningful results could result.

The major outcome measures of interest were target academic vocabulary, motivation, comprehension and transportation. Additionally, students were assessed on "control" variables that might, if not accounted for, cloud interpretations of the impact of major outcome variables of interest. These control variables included general reading ability (as measured by the Gates-MacGinitie Reading Test), volume of reading and reading experience with comic books and graphic novels (as indexed by the Author Recognition Task), and important demographic variables (i.e., gender, age, self-identified ethnicity). Although not all of these data were used in the current analysis, they are available for future analyses of this data set.

**Materials**

Two works by William Shakespeare that are less frequently included in public middle and high school curriculum and theater were intentionally chosen. Shakespeare is commonly introduced to students in middle and high school. Further, the current Common Core State Standards require student to become familiar and fluent with dramas, which are explained as written and film interpretation of plays of one or more acts. Specifically, Shakespeare is mentioned as an author of interest beginning in the 9th grade standards. In an informal poll of current Middle and High School English teachers, *Romeo and Juliet* and *Macbeth* appear to be the most common plays students encounter in Northern California high schools at the time of this study. These informal findings were supported by the sample of students in a pilot study, who listed these two plays as the Shakespearian works they had been previously encountered prior to the pilot study. These findings, in conjunction with the Common Core State Standards, ensure that this is the type of literature that students are likely to encounter in school. *Midsummer* and *Tempest* were ideal in the sense that the students were familiar with and had likely been exposed to Shakespeare as an important playwright (most likely through *Romeo and Juliet* or *Macbeth*) but were unlikely to have read either of these lesser-known works. Additionally, this approach maximized the likelihood that the texts, while novel to the students, would be developmentally and academically appropriate, authentic and engaging for students.

**Text Format.** The graphic novel versions of *A Midsummer Night's Dream* (see Appendix B for excerpt) and *The Tempest* (see Appendix C for excerpt) are described by the publisher to be "word for word" identical to the original Shakespearian scripts. In order to ensure this, the script version (see Appendix D and E for excerpt) and graphic novel version were compared twice to verify their identity. Due to limits on student availability (students could participate only during their 50-minute English class period), only limited excerpts from each text were included in the study. The first two acts of *A Midsummer Night's Dream* and the first act and first scene of the second act of *The Tempest* were selected. This selection process resulted in approximately equal segments (6,269 words for *Midsummer* and 7,478 words for *Tempest*) were selected as the target materials for this study. Both sections were chosen from the beginning of the play onward to ensure that plot development or assumed previous knowledge

**Matching Measure.** For this study, the vocabulary subtest of the *Gates-MacGinitie Reading Test* (*GMRT-V*) was used to gauge the pre-test general vocabulary competence of the participants. The Gates-MacGinitie Reading Test is a standardized assessment, which means that they are normed on national population, and that they provide information that can be compared to a national norm. This allows the information gathered on a specific subject to be confidently interpreted in comparison to a valid and reliable index. Therefore these are the assessments that were be used to ensure that the populations that read each format first were matched as equally as possible by the students' existing reading achievement.

As previously discussed, the *GMRT-V* score was used with a matched-pair methodology to create equally-vocabulary-abled-groups of students. This design prevents existing vocabulary ability from playing a distracting role in data analysis. The entire exam—reading (*GMRT-R*) plus vocabulary (*GMRT-V*)—was administered in a group setting, over two class periods (one subtest each English class period). Students were asked to complete the subtest for the day and then work on the packet of pre-tests and demographics. After the students concluded a subtest , they were asked to work on the packet of demographics and pre-test assessments they were provided; this packet included all other pre-tests (Target Vocabulary Measures, Author

Recognition Test, Adolescents' Motivation to Read Scale, Intrinsic Motivation to Read and the Tier 1 Completion Measure), all of which are discussed in detail below.

**Demographic Survey.** A brief survey (see appendix F) of information that was relevant to the research and to this study, according to existing scholarship was included. This includes the gender identity of the student, the age and grade of the student, and ethnic background specified by the student. Further, the survey asked for the student's current GPA and an estimate of their grade in English. These questions serve as a self-scoring for perceived ability and performance in their current academic achievement. ELL status was determined using Language Survey questions modeled after the US Census Bureau—American Community Survey (ACS). The three questions asked students to indicate the language spoken in the home and the wording used is closely matched to the wording of the language questions on the ACS publicly available dating back to 2009. Due to privacy laws, student CELDT scores and school records of ELL status could not be provided. Lastly Socioeconomic Status is estimated through self-report of SES as well as the highest and lowest levels of parental education. This survey is only given in the beginning of the data collection which occurred a week to two weeks prior to the reading of the initial play.

**Outcome Measures.** There were several outcome measures used in this study, some to assess growth over time as a function of exposure to key vocabulary, some to assess students' reading habits and motivation, and some to assess their local comprehension (tests of key ideas from the two excerpts they read from Shakespeare's plays) and their global comprehension (the Gates MacGinitie). Despite not reporting on all of the measures due to the narrow scope of this dissertation, all tools are described in this section. The assessments that were given initially to inform the researcher about existing ability and reading habits include the Author Recognition Test, the Adolescents' Motivation to Read (AMTR) scale, and a partial fill-in completion test for Tier 1 vocabulary. The primary measures this study focused on are those that could be given as pre and post-test to measure the impact of a format. These include the Target Academic Vocabulary, and the Intrinsic Motivation Inventory. Lastly, comprehension questions have been included to act as a secondary measure for engagement and basic understanding of the text.

***Author Recognition Test.*** The aim of this assessment is to more accurately gauge an individual's exposure to print and volume of reading (Stanovich & West, 1989; Cunningham & Stanovich, 1990, 1991; Stanovich & Cunningham, 1992). As originally outlined by Cunningham and Stanovich in 1990, this assessment is conducted by exposing subjects to 50 real author names and 50 foil author names. In order to create the list of real authors a two-step process was employed. The first step was to create a master list of the top 75 authors from Young Adult "Best Seller" lists from Amazon, Good Reads, NPR, Time and Google Books. In the second step, this list was given to an English teacher at a high school in a nearby school district. This teacher read the list to his English classes and crossed out the authors that none of the students had heard of. This step narrowed the list to 54 real author names. All 54 names were kept and 54 foils were developed. The foil authors are intended to be the names of real people that the subjects may know of, but who are not authors. The subject's ability to identify the real authors from the grouping presented to them provides an accurate measure of the subject's exposure to print and reading volume. A similar list was compiled of Young Adult Graphic Novel authors. This shorter list was comprised of 17 real authors and 17 foils. All foils and real authors were randomized into one assessment to minimize confusion of the tasks for the subjects (the ART can be found in appendix G).

***Adolescents' Motivation To Read scale.*** In this study the Adolescents' Motivation to Read (AMTR) scale (Pitcher et al., 2007) was used to assess the subjects' motivation to read prior to being exposed to the intervention texts (AMRT can be found in appendix H). The Pitcher et al. (2007) scale is based on the original Motivation to Read scale developed by Gambrell, Palmer, Codling and Mazzoni (1996) but modified for an adolescent population. As with the original scale, the AMTR provides scores for both constructs: self-concept as a reader and value of reading. Only the survey portion of this scale was given in this study due to the whole-class delivery of the data collection.

***Tier 1 Completion measure.*** Target Academic Vocabulary words are all Tier 2 or 3 (Beck, McKeown, & Kucan, 2013) words. These Tier 2 or 3 words are more sophisticated and precise labels (words) for concepts that may already be known (e.g. dog (Tier 1) and hound (Tier 2) or pretty (Tier 1) and gorgeous (Tier 2)). If a student already knows the Tier 1 concept and label for a word, the Tier 2 or 3 vocabulary is easier (less of a cognitive load) to learn. In order to discern if the students participating in this study were learning incidentally a new concept as well as a new label for a known concept, an additional vocabulary pre-test measure was developed (seen in appendix I). Initially, Tier 1 equivalents of the target words were discussed and a list developed.

This list was then examined using the Educator's Word Frequency Guide. This guide is one (if not the) largest systematic word frequency counts conducted to date. It took into consideration 60,500 text samples from across difficulty levels and genres. This sampling covered over 17 million word instances (tokens) and provides the Standard Frequency Index (SFI) to indicate a specific word's estimated frequency per million words in the corpus. This frequency was calculated by the authors on a logarithmic scale and then placed on a 0-100 point scale (the higher in the scale the more likely the word has a higher frequency). Although this scale allows for a 0-100 range, the words reviewed by the Educator's Word Frequency Guide only register between 3.5 and 88.3. The Tier 1 words that had been generated by the investigator were determined to need to be at least 7 points lower (i.e. more frequent) on this SFI scale of the Educator's Word Frequency Guide (Zeno, Ivens, Millard and Duvvuri, 1995) to be true Tier 1 equivalents. This was only possible for 41 of the 60 target words. These 41 words were placed in sentences, and then the second part of the word was removed to create a completion assessment modeled after Laufer and Nation's (1999) vocabulary size test. This assessment also underwent calibration with the same population as the 60 target word vocabulary tests.

***Target vocabulary measures.*** From each selected text, 20 academic vocabulary words were identified that were unique to the text and met two conditions: (a) they were part of the Coxhead *Academic Word List*, or were mentioned in accompanying teaching materials to this specific text as difficult vocabulary words that should be explicitly taught to students, (b) the word had to appear in the text three times used in the same way. Share (2004) found that two to four exposures of unknown words in a text was enough for early elementary students to be able to learn incidentally the meaning of the word. In addition to the core targeted academic vocabulary, an additional twenty words were identified that met these criteria in both plays. Ten of these words were arcane (old English/Shakespearian English) and ten were overlap words (words that met both selection criteria in both selections of the plays and would therefore cause possible errors in the findings). All 60 of these words met one or more of these inclusionary criteria.

These 60 words were defined and placed in a vocabulary measure that required the students to correctly match the word with the definition. This measure was calibrated for the use

in this study. There were four versions of the final measure developed so that students were randomly assigned to the same questions in different order in each version initially. Students were given one of the alternative versions of the vocabulary measure as the post-test measure to ensure that learned effects of the same ordering of the questions was excluded from the study.

A pre-test of vocabulary was given to assess how many of the target academic language vocabulary words a individual student knew prior to reading *A Midsummer Night's Dream* and *The Tempests*. The primary vocabulary tool for this study was calibrated using Item Response Theory prior to being used to measure vocabulary growth in this study. It was calibrated to students of a different, regional, and demographically similar school district. Students were tested for the same 20 target academic vocabulary from each play, as well as 10 arcane words and 10 overlapping words (the 4 vocabulary assessments can be found in appendix J-M). After the initial play the students were assessed immediately after reading, for the 20 target words from the play they just read. After the second play, the students were immediately assessed for the 20 target words from this second play in addition to the arcane and overlapping target words. The comparison of the pre-and post-test scores measured if the targeted academic language was learned incidentally. Pre-and post-tests consisted of the same questions, but the order of the questions were randomized and students were not exposed to the same variation of the test in both times. These pre-reading and post-reading vocabulary tests are the primary measures of this study to answer the first two research questions proposed

***Intrinsic Motivation to Read.*** Guthrie and Wigfield (1997) define motivation as the "beliefs, values, needs and goals that individuals have" (p. 5). If a person wants to read they are more likely to read in comparison to a person who does not want to engage in reading. Compelling texts have been found to generate a desire within readers to want to learn or engage more with the materials. Guthrie (1996) found that highly motivated readers are more likely to create their own opportunities to read. Increasing the amount of reading that they engage in has been found to positively predict academic achievement. Further, different motivation factors have been found to influence literacy learning (Deci & Ryan, 1992; Eccles, 1983).

Enjoyment of reading has been linked to intrinsic reading motivation. The original Intrinsic Motivation Inventory (IMI) has been used to measure intrinsic motivation since the early 1980's. This scale has had additional subscales added to augment the findings and inform on additional factors of motivation. The IMI scale used for this study was tailored to target the students' feelings about reading (see appendix N). Lastly, the **Text Material Questionnaire** (see appendix O) was used as an exit questionnaire to measure if a student's reading motivation had changed due to the specific format condition they were exposed to.

***Comprehension questions.*** Existing curriculum was examined to extract target vocabulary words for each of the Shakespeare plays used in this study. From this same examination of existing curriculum, comprehension questions were gathered and examined for literal and inferential comprehension. Six multiple choice comprehension questions were selected for each play; they assesses a mix of depth and breath of understanding of the play (please see appendix P and Q). Due to their source, these questions were neither piloted nor calibrated for this specific study.

***Transportation.*** The original quantitative scale to measure Transportation (in the sense of being "carried away" aesthetically or emotionally) was developed by Green and Brock in 2000. These authors were willing to provide advice on how to adapt the existing tool to this study. This 17-item measure utilized 7-point Likert scales (*Not at all* to *Very Much*) to best represent students' opinions about what they just read; it is divided into two subscales. The

initial 11 items report on General Transportation subscale, and report on the absorption of a reader into a text. These items ask readers to reflect upon their mental state while reading (e.g. "I was mentally involved in the narrative while reading it.") as well as their emotional reactions (e.g. "The narrative affected me emotionally.") and their investment into the piece (e.g. "I wanted to learn how the narrative ended."). These initial 11 items were presented to the participants regardless of the play the read. By contrast, the subsequent six items report on the Character Specific Transportation, and are based on the narrative they had just been read. These items ask the reader to gauge their feelings about specific main characters in each play (e.g. "While reading the narrative I had a vivid image of Lysander."). For both versions of the measure please refer to appendices R and S.

**Data Collection**

Data were collected in the classroom setting over the course of nine visits to the school site. Each class participating yielded academic instruction time to the study and the data was collected during four class periods for each class, and a "make-up" period as needed. This study was conducted in the Winter quarter of all the students' 10th grade English year. Due to limited access to technology, all assessments were presented in printed booklets that were scanned and coded by the study team. Further, all texts were provided to the students to read individually in a separately bound edition of the selected text.

**Procedure**

**Phase I.** This initial phase took place over two days in the same week. In the initial visit all the participants were introduced to the researchers, and given the Gates-MacGinitie Vocabulary subtest. The researcher administering the assessment read the prompting scripts provided by the GMRT, for normed administration. Upon completion, they were asked to raise their hands and begin to fill out the initial assessment packet which contains: a demographic inventory, the Author Recognition Test, the AMRT, the IMI, one of the versions of the target academic vocabulary tests, and the Tier 1 equivalent test. The students were not expected to complete this packet on the first day, but it ensured that the students are not rushed for time to complete the Gates-MacGinitie in its entirety in one day. The students continued to work on the packets until the class period ended.

The second day, the students began with the Gates-MacGinitie Reading Comprehension section. The students were again read the testing script from the Gates-MacGinitie and asked to raise their hand upon completion. When they did so, they received their initial assessment packet to complete in this class period. Each of these testing sessions took the majority of students 50 minutes to complete. Students who were not present to complete the full Gates-MacGinitie were assigned to conditions based on their Vocabulary Scores.

**Phase II.** The third visit to the school-site was conducted after the students had been matched based on their Gates-MacGinitie Vocabulary Extended Standard Score and had their conditions and plays assigned. At this time the students will be given either the first two acts of *A Midsummer Night's Dream* or the first act and a scene of *The Tempest* in one of the two conditions (Script or Graphic Novel), and asked to raise their hand when were done reading so that the investigator could give them their alternative form of the target academic vocabulary test and the Exit intrinsic motivation inventory. The fourth visit to the school-site was conducted anywhere from 3-5 days later. During this time, the students were given the play and format they did not receive in the initial reading on the third day. The majority of students were able to complete this in 45-55 minutes. There was only one make-up day for the second phase due to

the fact that a significant number of students were missing for these days due to illness across the school and athletics.

**Data Entry and Analysis**

Upon completing the paper-and-pencil post-tests, the paper copies were collected and the data was then digitized and made available to undergraduate research assistants. These research assistants supported the scoring, coding and cleaning of the data into a excel spreadsheet under the supervision of the lead researcher. The excel sheet was spot-checked and several errors were found in the data entry. Therefore the data was re-entered by the research team after a refresher course was given on the codex and the scoring procedure. After completing the coding a second time, the lead intern and lead researcher rechecked the data for accurate entry. The recoding was found to be significantly more accurate, and no errors were found using randomized spot-check.

Reporting results and discussing analysis conducted will purposely—when possible—report both the statistical significance and the effect size due to the strengths and weaknesses in the reviews of only one of these two significance analysis. This was done to ensure that both statistical differences and substantive differences were considered whenever possible. Statistical differences inform if there was an effect present between two groups, and if this difference could be a product of chance or sample variability. This type of analysis relies heavily on the size of a sample, which some argue, unfairly favor studies with large samples (Moran, Ferdig, Pearson, Wardrop & Blomeyer, 2008), even if the existing relationships are weak. The statistical differences were reported using *p*-values (typically the product of paired sample t-tests), with an alpha level of 0.05. This means that in this study, statistical significance was reported when there was only a 5% probability that the observed effects and findings could be due to random chance, or there is a 95% chance that the difference found is due to the model analyzed rather than chance.

The statistical significance analysis was paired with effect size (Cohen's *d*) reports whenever possible. Effect sizes report on the magnitude of the observed differences between group means (Sullivan & Feinn, 2012). This information speaks to the substantive significance of the observed finding and is calculated independent of sample size, unlike statistical significance. Some scholars refer to this as the practical significance of a relationship (e.g. Ferguson 2009). This allows for the size of the effect to be considered and evaluated independently of any concerns with sample size. In evaluating the magnitude through Cohen's *d*, the bulk of currently literature reports effects found to be 0.2 as small; 0.5 as moderate and above 0.8 to be large (Moran, et al., 2008; Sullivan & Feinn, 2012). Although these descriptive interpretations of Cohen's *d* have changed over the decades, but this study will utilize these more currently commonly used breakpoints and labels.

**Analysis**. For the first research question — Does the graphic novel format, compared to the conventional, text-only script format, reveal reliable differences on measures of a) Vocabulary incidentally learned while reading; b) Reading motivation; c) Reading transportation; and d) Reading comprehension—paired sample t-tests were used with a multiple regression to measure the difference between pre- and post-reading scores. A paired sample t-test is a statistical technique that is used to compare the means of two populations. In this case the mean comparison will be of each student's incidental learning in a graphic novel format, and their incidental learning in a script format. This is a technique is also primarily used to compare pre- and post-tests to each other and also with a matched pairs design. Due to all of these features, it was the most appropriate statistical analysis to answer the three research questions put forth in this study.

The second research question examined the same impact as the first research question described above, but with the added variable of English language fluency (ELL or Primarily English speaking), as discerned through the demographic questionnaire completed by the students denoting the language spoken in their home. This question was answered using paired t-tests and a multiple regression. This regression examined the effect of ELL status as well as format in the analysis on the pre-and post-tests for incidental target vocabulary acquisition, reading motivation, reading transportation and reading comprehension.

Lastly, the third question— Do motivation, transportation, and reading comprehension mediate the relationship between format and vocabulary learning; and is any mediating effect consistent across formats and learner categories? —was also examined using a multiple regression. This analysis will be taken a step further by using mediator analyses.

**Summary**

This quantitative study set out to inform the literature whether the graphic novel format—when compared to a traditional script format—could provide positive learning and psychosocial outcomes for 10th-grade-students. The study utilized matched-pair design—through the Gates-MacGinitie Reading Test—as well as randomization to ensure that the targeted constructs (incidental academic vocabulary acquisition, comprehension, intrinsic motivation and transportation) were measured without confounding factors such as pre-existing levels of vocabulary ability, or ordering effects. The 265-student sample from one high school in Northern California was targeted to include a large number of ELL students and to be inclusive across the different levels of English 10 available at the study site (e.g. PUENTE, Gate, general education and remedial). ELL students were identified through a question in the Demographic Survey utilized by state and federal agencies to determine ELL status (What language is spoken at home?). Two works of Shakespeare rarely taught in public schools in California—*The Tempest* and *A Midsummer Night's Dream*—were employed in both the traditional script format and the innovative graphic novel format as the stimuli texts.

Prior to reading either text, students were given the Gates-MacGinitie Reading test and additional measures to establish baseline knowledge (e.g. targeted academic language pre-test, ART, Tier 1 Fill-in Vocabulary measure), feelings about reading (e.g. AMTR scale, Intrinsic Motivation Inventory for Reading) and to learn more about demographic characteristics of the student participants. All students were expected to read two plays, one in each format, in the last two days of the study to provide individual information in both formats to better understand the effects of the graphic novel format on vocabulary learning, comprehension, motivation and transportation. After each reading, students were given exit measures addressing the four areas of research and a short overall exit-questionnaire about their perceived preferences in format or play. The data collected from the 10th-grade-students was digitized by research assistants prior to statistical analysis being conducted to answer the three core questions of this study. Two significance analysis were used—statistical significance and effect size—to attain a more robust understanding of the observed changes due to format and the play read.

## Chapter 3: Results and Discussion

Because of the boom in the graphic novel format in the last 35 years, and more specifically for young adults and children over the last decade, this study aimed to discover possible positive academic and psychosocial outcomes from reading a text in the graphic format rather than the traditional, text-only format. The graphic format's appeal and high-interest status could be considered an easy vehicle for learning due to existing enjoyment and popularity with students (Alvermann, Hagood & Williams, 2001). This excitement around the format in combination with inherent scaffolding within the format created an excellent opportunity for new vocabulary acquisition (Smetana, 2009) and increased understating (as measured through comprehension). This scaffolding emerges from the multiple meaning-making modalities that are multiple visual literacies utilized fundamentally by the format. Along with this scaffolding comes the likelihood of a positive impact on motivation for reading (Botzakis, 2009; Crawford, 2004; Cromer & Clark, 2007; Kutch, 2014) as well as transportation (being swept away) and engagement (being drawn into). Given English language learners' history of disengagement from the discourses and texts of schooling, these effects could be predicted to be especially significant for them, especially in their quest to acquire the academic vocabulary so common to the discourses of schooling.

These claims were examined through a methodology that was strategically designed to tease out differences between traditional text-only script (operationalized as a script) and graphic novel (GN) versions of classic literature, in this case two plays—*The Tempest* (*Tempest*) and *A Midsummer Night's Dream* (*Dream*), both in the original language used by William Shakespeare. Outcome measures of academic vocabulary incidentally learned, comprehension of the text, feelings of intrinsic motivation for reading and transportation into the narrative were analyzed to better understand the graphic format's effects and potential. This methodology allowed one to answer three core research questions:

1. Does the graphic novel format, compared to the conventional, text-only script format, reveal reliable differences on measures of:
    a. Vocabulary incidentally learned while reading?
    b. Reading comprehension?
    c. Reading motivation?
    d. Reading engagement/transportation?
2. Are the effects of the format on any of these variables different for English language learners compared to their English-only peers?
3. Do motivation, transportation, and reading comprehension mediate the relationship between format and vocabulary learning? And is any mediating effect consistent across formats and learner categories?

### Statistical Analysis

Because the measures were collected across multiple days, the interaction of time and progression was considered in the analysis of this data set. As previously discussed in the Methods section, the participants were matched-paired into the first format they would encounter, and then randomly assigned to a play to begin with. This created four possible progression groups, those who read *Tempest* script first and then the *Dream* graphic novel second (Ts—Dg); *Dream* script first and the *Tempest* graphic novel second (Ds—Tg); *Tempest* graphic novel first, and then the *Dream* script (Tg—Ds); and lastly those who read *Dream*

graphic novel first and the *Tempest* script second (Dg—Ts). Although the order of the reading exposures was not found to be relevant across all outcome variables, there are some outcomes (particularly the three motivation scales) that do show significant differences depending on the progression of the texts. Progression differentiations are reported when the ordering impacts the outcome variables, usually in interaction with format and/or play; however, because format was the primary focus of this study, the analyses were collapsed across progressions whenever possible.

Further, as some of the outcome measures were designed to be play-specific (e.g. vocabulary test, comprehension questions, half of the transportation scale relating to the play's characters) results for format are reported by play when appropriate to avoid unwarranted generalizations across materials. The *p*-values and standard deviations were found using a paired t-test unless otherwise noted. In order to most accurately communicate the results of this study, the means (*M*) were calculated using all the data available for each assessment (e.g. pre-test for *Tempest* vocabulary, Intrinsic Motivation Inventory pre-test), however the change in means ($\Delta M$) were calculated only using the data provided by the students who took both the pre- and post-tests. This differentiation accounts for minor changes in *n* as well as $\Delta M$ between tables and reporting.

## Impact of Format

This initial question (Does the graphic novel format, compared to the conventional, text-only script format, reveal reliable differences?) was examined by comparing the participant data separately for the two plays on the four primary outcome measures: vocabulary growth, reading motivation, transportation and comprehension.

### Vocabulary

When examining the changes in vocabulary from pre-test to post-test for each play, both group-means grew from pre-to post-test (see Table 1). Both plays and both formats showed positive changes in the vocabulary scores of students. This supports the long line of incidental learning research positing that students are able to learn vocabulary incidentally from reading (e.g., Nagy, Herman & Anderson, 1985).

Table 1

*Target Academic Language Change in Raw Scores Pre- to Post-Test (of 20)*

| | Pre-Test | | | Post-Test | | |
|---|---|---|---|---|---|---|
| Text format | *n* | *M* | SD | *n* | *M* | SD |
| *A Midsummer Night's Dream* | | | | | | |
| Overall | 255 | 11.13 | 3.73 | 242 | 11.61 | 3.81 |
| Script | 126 | 11.40 | 3.65 | 117 | 11.95 | 3.65 |
| GN | 129 | 10.86 | 3.80 | 125 | 11.29 | 3.86 |
| *The Tempest* | | | | | | |
| Overall | 255 | 9.82 | 3.10 | 241 | 10.57 | 3.44 |
| Script | 131 | 9.34 | 3.07 | 127 | 10.19 | 3.48 |
| GN | 124 | 10.32 | 2.88 | 114 | 10.99 | 3.36 |

The overall growth (see Table 2) on a 20-point scale (change in mean; $\Delta M = 0.45$) of student vocabulary after reading *Dream*, regardless of the format, was statistically significant as measured by a paired t-test ($p = 0.03$) with a small effect size (as measured by Cohen's $d = 0.2$). Similarly, for all students who read *Tempest*, regardless of format, also experienced statistically significant ($p = 0.003$) growth in their targeted academic vocabulary ($\Delta M = 0.68$) on a 20-point scale, with a small effect size ($d = 0.33$), again consistent with the literature of incidental vocabulary acquisition reviewed for this dissertation (e.g. Nagy, Herman & Anderson, 1985).

Table 2

*Target Academic Language Raw Score Change Pre- to Post-Test*

| Text Format | *n* | $\Delta M$ | *p* | *d* |
|---|---|---|---|---|
| | | *A Midsummer Night's Dream* | | |
| Overall | 238 | 0.45 | 0.03 | 0.20 |
| Script | 116 | 0.47 | 0.11 | 0.21 |
| Graphic Novel | 122 | 0.42 | 0.14 | 0.19 |
| | | *The Tempest* | | |
| Overall | 238 | 0.68 | 0.003 | 0.33 |
| Script | 125 | 0.82 | 0.002 | 0.38 |
| Graphic Novel | 113 | 0.52 | 0.04 | 0.27 |

Upon establishing growth in vocabulary in both plays regardless of format, the two formats were compared to determine any differential gains as a function of format. Within the *Dream* condition, participants who read the Ds gained virtually the same amount of targeted vocabulary learning ($\Delta M = 0.47$) as those who read the Dg ($\Delta M = 0.42$). The difference in pre-post gains across the format was not found to be statistically significant and both had very similar, small effect sizes of the gains (Ds $d = 0.21$; Dg $d = 0.19$), suggesting that students gained the same amount of targeted academic vocabulary from both formats of *Dream*.

Similar results were found in the students who read *Tempest*. Students who were exposed to Ts gained ($\Delta M = 0.82$) targeted vocabulary words, as did those in the Tg condition ($\Delta M = 0.52$). Despite these seemingly large gains, the Ts group was found to have statistically significant ($p = 0.002$) improvement, as did the Tg group ($p = 0.044$). However, these differences were not found to be different in a statistically significant manner ($p = 0.87$), and both conditions reported effect sizes in the small range (Ts $d = 0.38$; Tg $d = 0.27$).

In short, the results from this study replicated the classic incidental acquisition of vocabulary effect but did not support the hypothesis that the GN format might provide an extra boost in incidental learning due primarily to increased appeal and engagement. Rather, it was shown that students learn targeted academic vocabulary incidentally equally well in the graphic novel and script formats.

**Progression analysis.** In order to confirm that the ordering of the exposure to the plays did not impact students' ability to incidentally acquire vocabulary (e.g. students scored higher on their first exposure), the progressions of the vocabulary gains were examined (see Table 3). Due to the play-specific vocabulary that was included in the vocabulary assessments, the progression outcomes must be examined by play-format combination rather than collapsing the plays to only examine the impact of format.

Table 3
*Target Academic Language Raw Score Change Pre- to Post-Test by Progression*

| | Pre-Test | | | Post-Test | | | Pre-Post Change | | |
|---|---|---|---|---|---|---|---|---|---|
| Play | *n* | *M* | *SD* | *n* | *M* | *SD* | Δ *M* | *p* | *d* |
| Progression: Ts–Dg | | | | | | | | | |
| Dream | 57 | 11.21 | 3.55 | 60 | 11.07 | 3.72 | -0.14 | 0.76 | -0.06 |
| Tempest | 63 | 9.39 | 3.01 | 63 | 10.00 | 3.33 | 0.61 | 0.09 | 0.31 |
| Progression: Ds–Tg | | | | | | | | | |
| Dream | 57 | 11.61 | 3.57 | 57 | 12.02 | 3.62 | 0.40 | 0.25 | 0.22 |
| Tempest | 55 | 10.24 | 2.87 | 55 | 10.96 | 3.81 | 0.73 | 0.08 | 0.34 |
| Progression: Tg–Ds | | | | | | | | | |
| Dream | 57 | 11.35 | 3.78 | 57 | 11.79 | 3.94 | 0.44 | 0.36 | 0.17 |
| Tempest | 58 | 10.64 | 2.97 | 58 | 10.97 | 2.91 | 0.33 | 0.31 | 0.19 |
| Progression: Dg–Ts | | | | | | | | | |
| Dream | 65 | 10.66 | 3.88 | 65 | 11.60 | 3.86 | 0.91 | 0.01 | 0.47 |
| Tempest | 62 | 9.27 | 3.17 | 62 | 10.26 | 3.70 | 0.98 | 0.02 | 0.42 |

***Progressions with the script format first.*** The Ts—Dg progression group showed a pre-test level of targeted *Tempest* academic vocabulary knowledge ($M = 9.39$) that increased after reading Ts first ($M = 10.00$). This increase in vocabulary ($\Delta M = 0.61$) was not found to be a statistically significant gain ($p = 0.09$) but it was found to have a small effect size ($d = 0.31$). This same group of students had pre-existing targeted *Dream* academic vocabulary ($M = 11.21$) that decreased when they read Dg ($M = 11.07$). However the decline by this group ($\Delta M = 0.14$) in the second reading were neither statistically significant ($p = 0.76$) nor had a significant effect size ($d = 0.06$).

The results in the Ds–Tg progression for these 10th-grade-students showed a different trend than the previous progression had experienced, more specifically incidental language acquisition occurred in both exposures. These students' existing academic vocabulary for *Dream* ($M = 11.61$) increased ($M = 12.02$) after reading the Ds condition. This increase ($\Delta M = 0.40$) was not found to be statistically significant ($p = 0.25$) but was found to have a small effect size ($d = 0.22$). These same students' prior knowledge of the targeted *Tempest* vocabulary ($M = 10.24$) increased after reading Tg ($M = 10.96$) by a margin ($\Delta M = 0.73$) that was not statistically significant ($p = 0.08$) but did have a small effect size ($d = 0.34$).

These two initial progressions did not establish a clear trend about the impact of the format a play was presented on a students' incidental vocabulary acquisition. Due to an inconsistent finding in the impact of reading a play in the graphic novel format (the first progression seeing a decline, and the second a statistically significant increase in vocabulary) as a second text, no consistent trend appears. Both progressions did appear to have a smaller gain (if any) after reading *Dream* in either format, yet began with relatively less knowledge of the targeted words from *Tempest*. It is unclear if this allowed for more gain on the 20-vocabualry word scale or if there was another factor inherent to the plays that may impact the student-participants in targeted academic vocabulary acquisition.

***Progressions with the GN format first.*** The third progression group examined was of Tg–Ds. In this progression, students began with pre-test targeted *Tempest* academic vocabulary ($M = 10.64$), which increased when students read Tg ($M = 10.97$). This increase ($\Delta M = 0.33$) was not statistically significant ($p = 0.31$), and had a very small effect size ($d = 0.19$). Similarly, the progression student's knowledge of the targeted academic vocabulary for *Dream* ($M = 11.35$) increased after these students were exposed to Ds ($M = 11.79$). This increase in knowledge of targeted *Dream* academic vocabulary ($\Delta M = 0.44$) was not statistically significant ($p = 0.36$), and the impact achieved was a very small effect size ($d = 0.17$).

The last progression Dg–Ts, had students' pre-reading levels of targeted *Dream* academic vocabulary ($M = 10.66$) that increased in raw score after reading Dg ($M = 11.60$). The gain that was observed ($\Delta M = 0.91$) for the ELL's of this progression was statistically significant ($p = 0.01$), and had a small effect size ($d = 0.47$). The pre-existing levels of knowledge for *Tempest* targeted vocabulary for the ELL students in this progression ($M = 9.27$) increased ($\Delta M = 0.98$) after reading Ts ($M = 10.26$). This finding was statistically significant ($p = 0.02$), and was found to have a small effect size ($d = 0.42$).

Overall, the two progressions that began with the graphic novel format showed observable growth after reading both plays. Only the fourth progression revealed statistically significant growth consistently in both plays and formats; even so, it is clear in these progressions that positive growth is occurring through incidental vocabulary acquisition. Yet, there was no consistent, statistical impact on vocabulary learning due to the order of the play-format combinations the students were exposed to.

**Comprehension**

Examining the participants' comprehension of the text allowed for a second academic skill to be measured in this study. These two post reading tests consisted of 6 multiple choice items that were written specifically for each play and therefore, like the vocabulary tests previously discussed, require separate analyses because of the different outcome measures (see Table 4). Recall that all 6 comprehension items for each play presented four possible choices with a single answer keyed as correct; chance performance was 25% or 1.5 items answered correctly had students randomly guessed on all items. On average across all conditions, the mean comprehension scores hovered around 2.35, indicating that they were performing above chance but not much. The overall raw comprehension score for *Dream* ($M = 2.45$) and *Tempest* ($M = 2.29$) were not statistically different from one another.

Table 4

*General Comprehension raw scores: Whole sample by Play*

| Play | *N* | *M* | SD |
|---|---|---|---|
| Dream | 265 | 2.45 | 1.87 |
| Tempest | 265 | 2.29 | 1.68 |

Additionally, due to differences found associated with the four possible progressions, these data required separate analyses by progression group (see Table 5). The *Dream* scores by general format breakdown show an overall Ds score ($M = 2.30$) that was not statistically significantly different than that of the overall Dg score ($M = 2.59$). The difference between formats ($\Delta M = 0.27$) was not statistically significant ($p = 0.24$) and yielded a very small effect size ($d = 0.14$) between the formats for *Dream*. Similarly, *Tempest* scores by format, pooled

across progressions, showed that the Ts condition ($M = 1.99$) was not statistically significantly lower than the Tg condition ($M = 2.61$) with a difference ($\Delta M = 0.61$) that was statistically significant ($p = 0.003$) and the format was found to have a small effect ($d = 0.37$) on comprehension of the *Tempest*. Unlike Vocabulary gains, the progression order of the readings impacted comprehension and called for an examination by progression. However, due to the play-specificity of the questions in this measure, the results must continue to be examined by play.

Table 5

*Reading Comprehension Raw Scores (out of 6) by Progression*

| | *Post-Script* | | | *Post-Graphic Novel* | | |
|---|---|---|---|---|---|---|
| Sample | *n* | *M* | *SD* | *n* | *M* | *SD* |
| | | | Dream | | | |
| All Participants | 128 | 2.30 | 1.82 | 135 | 2.59 | 1.93 |
| Ts – Dg | | | | 67 | 2.51 | 1.91 |
| Ds – Tg | 64 | 2.52 | 1.89 | | | |
| Tg – Ds | 64 | 2.08 | 1.73 | | | |
| Dg – Ts | | | | 68 | 2.66 | 1.95 |
| | | | Tempest | | | |
| All Participants | 135 | 1.99 | 1.64 | 128 | 2.61 | 1.68 |
| Ts – Dg | 67 | 1.75 | 1.56 | | | |
| Ds – Tg | | | | 64 | 2.52 | 1.73 |
| Tg – Ds | | | | 64 | 2.70 | 1.63 |
| Dg – Ts | 68 | 2.24 | 1.69 | | | |

Note. Empty cells are due to the progression group not reading the play-format combination noted.

**Tempest progressions.** The four progression groups allow for *The Tempest* to have been read and comprehended in both formats as the initial or the concluding text. When the play was read as a script (Ts) first the mean score ($M = 1.75$) was lower than when the play format combination was read second ($M = 2.24$). However this difference in scores due to progression is not as apparent when students read the graphic novel format. In the graphic novel exposures of *The Tempest*, those who read this play format combination ($M = 2.70$) and those who received it second ($M = 2.52$). These scores show an average comprehension score higher than those of the script format, but these differences were statistically significant.

**Dream progressions.** This difference between formats was also examined when reviewing the comprehension scores of *Dream*. The students who read the script format for Dream (Ds) first were found to have a mean comprehension score ($M = 2.52$) higher than those students who read Ds second ($M = 2.08$). However the difference between the progressions was not significant. As with the *Tempest* in the graphic novel condition, *Dream* comprehension scores between progression scores in the graphic novel condition is minimal, with the first exposure mean ($M = 2.66$) being only slightly higher than the second exposure mean ($M = 2.51$). These scores show that unlike *Tempest* the graphic novel condition did not consistently yield comprehension scores that were higher than the script scores.

The lack of consistency observed in *Dream* could explain the smaller difference in average comprehension scores between the formats. This smaller difference in average raw score favored the graphic novel format, but was found to not be statistically significant. This may be due to the fact that in *Dream*, one of the script average comprehension scores was comparable to the graphic novel condition. This lack of consistency for *Dream* suggests that there may be an interaction effect inherent to the narrative that may confound the statistically significant format findings of *Tempest*. The consistency in the comprehension scores by format after reading *Tempest* suggest that there may be a benefit in narrative comprehension when students read the graphic novel format rather than the script. These mixed findings for comprehension suggests an interesting avenue for future research.

**Intrinsic Motivation Inventory for Reading**

Three scales from the Intrinsic Motivation Inventory (Ryan, 1982) were used in exactly the same form across formats: Interest and Enjoyment of Reading, Perceived Competence in Reading, and Pressure and Tension felt while Reading. Therefore, each participant had three data points that were combined to find group-mean levels at each time assessed. These findings were heavily impacted by the order within the progressions, and therefore the separate analyses of the four possible progression groupings better represent the interaction effect of order and intrinsic motivation. In these analyses, it is important to remember that the outcome measures are the same regardless text or format; therefore, unlike the previous Vocabulary and Comprehension outcomes, it is possible to compare changes in these motivation scales across plays not just format.

**Interest and Enjoyment of reading scale.** This subscale of the Intrinsic Motivation Inventory examined changes in individual interest and enjoyment of reading before and after reading (see Table 6). This construct is foundational to transportation and engagement (e.g. Bilandzic & Busselle, 2006; Green, Brock & Kaufman, 2004) as well as academic achievement (e.g. Guthrie & Wigfield, 1999). For each of the five items on this scale participants rated their self-perception on a 7-item Likert Scale (1: Not true at all about me to 7: Very true about me).

Table 6

*Intrinsic Motivation for Reading Descriptive Statistics: Interest and Enjoyment*

| | Pre-test (T1) | | | Post-test 1st play (T2) | | | Post-test 2nd play (T3) | | |
|---|---|---|---|---|---|---|---|---|---|
| Progression | *n* | *M* | *SD* | *n* | *M* | *SD* | *n* | *M* | *SD* |
| $T_s$–$D_g$ | 62 | 3.67 | 0.74 | 62 | 3.26 | 0.86 | 56 | 3.88 | 1.18 |
| $D_s$–$T_g$ | 61 | 3.76 | 0.62 | 55 | 3.55 | 0.93 | 56 | 3.85 | 0.98 |
| $T_g$–$D_s$ | 61 | 3.88 | 0.71 | 54 | 3.77 | 0.81 | 56 | 3.50 | 0.95 |
| $D_g$ – $T_s$ | 64 | 3.81 | 0.66 | 59 | 3.82 | 0.92 | 60 | 3.45 | 0.80 |

***Progressions with the script format first.*** The Ts—Dg progression group showed a pre-test level of interest and enjoyment ($M$ = 3.67) that dropped when they read the Ts first ($M$ = 3.26) and then increased again beyond pre-test levels after reading Dg second ($M$ = 3.88). The difference in means was examined between pre-test and the first reading, and then again between the first reading and the second reading for each progression to determine statistical significance and the size of the effect of each format (see Table 7). A significant negative effect occurred between pre-test levels of Interest and Enjoyment and those reported after reading Ts ($\Delta M$ = -0.34) that was followed by a significant reversal of the drop after students were asked to read Dg

($\Delta M = 0.64$). Both of these changes are statistically significant ($p = 0.01$ pre to Ts; $p = 0.0003$ for Ts—Dg) and more meaningful due to the progression interpretation rather than overall change. Further, the small effect size of the initial drop ($d = 0.48$) is reversed by the moderate effect size of the second exposure to Shakespeare ($d = 0.73$) in the graphic format.

The results in the Ds—Tg progression showed the same trend of an initial drop from pre-test ($M$=3.76) to the Ds condition ($M$=3.55) followed by a subsequent reversal after reading Tg ($M$=3.85) to levels higher than those found in the pre-test. However, unlike the first progression group examined, the initial reading of Ds did not cause a statistically significant (p = 0.20) change in the reported levels of interest and enjoyment ($\Delta M = -0.19$). Yet, this progression group did show a statistically significant ($p = 0.038$) increase after reading Tg, which also exceeded the reported levels of interest and enjoyment of reading in the pre-test. Further, although both of these changes in self-reported interest and enjoyment in reading had effect sizes in the small range ($d = 0.25$ pre to Ds; $d = 0.42$ Ds to Tg), it is important to note that that effect of the latter is almost twice as large as the prior.

Table 7

*Intrinsic Motivation for Reading Comparative Statistics: Interest and Enjoyment*

| | Change T1-T2 | | | Change T2-T3 | | |
|---|---|---|---|---|---|---|
| Progression | $\Delta M$ | $p$ | $d$ | $\Delta M$ | $p$ | $d$ |
| $T_s$–$D_g$ | -0.34 | 0.011 | -0.48 | 0.64 | 0.0003 | 0.73 |
| $D_s$–$T_g$ | -0.19 | 0.20 | -0.25 | 0.33 | 0.04 | 0.42 |
| $T_g$–$D_s$ | -0.14 | 0.32 | -0.19 | -0.26 | 0.11 | -0.32 |
| $D_g$ – $T_s$ | 0.09 | 0.55 | 0.11 | -0.39 | 0.0013 | -0.65 |

These two initial progressions show that when students are given the script format first, and then the graphic (regardless of the play) student reported levels of interest and enjoyment of reading follow a consistent trend of dropping from pre-test levels to the initial script exposure, and then rebounding to higher than pre-test levels after the graphic novel format exposure. Therefore, not only is student interest and enjoyment flexible, but it appears that format has a significant impact on student self-reports on this characteristic of intrinsic motivation.

***Progressions with the GN format first.*** The next progression group of Tg—Ds began with pre-test interest and enjoyment of reading ($M = 3.88$), which dropped slightly when they first read Tg (M = 3.77) and then proceeded to drop again after reading Ds ($M = 3.50$). The initial decrease of interest and enjoyment ($\Delta M = -0.13$) was not statistically significant ($p = 0.32$), nor was the second decrease after reading Ds ($\Delta M = -0.26$; $p = 0.11$). Despite the lack of statistically significant differences, the effect size of reading Tg ($d = 0.19$) was very small, while the small effect of Ds ($d = 0.32$) was relatively larger.

The last progression Dg—Ts, had pre-test levels of interest and enjoyment ($M = 3.81$) that increase in raw score marginally after reading Dg ($M = 3.82$) and then dropped when Ts was read ($M = 3.45$) last. The initial change after reading Dg ($\Delta M = 0.09$) was minimal and was not found to be statistically significant ($p = 0.55$), however, the Ts reading caused larger changes ($\Delta M = -0.39$) that were found to have statistical significance ($p = 0.001$). This is reflected in the effect sizes found in this progression in the extremely small ($d = 0.11$) effect size of reading Dg compared to the moderate effect of reading Ts ($d = 0.65$) on interest and enjoyment of reading.

Overall, this grouping of progressions that began with the graphic novel format of the plays showed a general trend that is different to that in the progressions with script-first exposures. This trend shows very little change (both in terms of statistical significance or effect size) in self-identified interest and enjoyment of reading in students from pre-test to graphic novel exposure. However, this progression also shows relatively larger changes that occur after reading the script format. Although only one of the script exposures caused statistically significant changes (Dg—Ts progression), both reflect the same trend in the progression effect sizes. In both cases, the effect size of the graphic novel is relatively small, while the effect size of reading the script condition is relatively larger (in the small to moderate range).

The consistency in the findings across progressions in this subscale (which are depicted graphically in Figure 2), suggests that the graphic and script formats have very different impacts on students' interest and enjoyment of reading. Further, the findings show that there is a difference in the impact of each format depending on the order in which the format (rather than the plays) are read in. It appears that once students have read the text-only script format, they are more likely to rebound above pre-test levels of interest and enjoyment when given the graphic novel. However if given the graphic novel first, students did not consistently rate themselves higher than pre-test levels of interest and enjoyment of reading, yet the drop after reading the script was similar to that seen in the raw scores of the groups who read the scripts first. It is interesting to note that the drops in this scale always appeared to be more severe in the *Tempest* format (particularly when comparing raw scores across progressions) than those in the *Dream* format. It is unclear if this is due to a slight dislike of the play content or difficulty in reading.

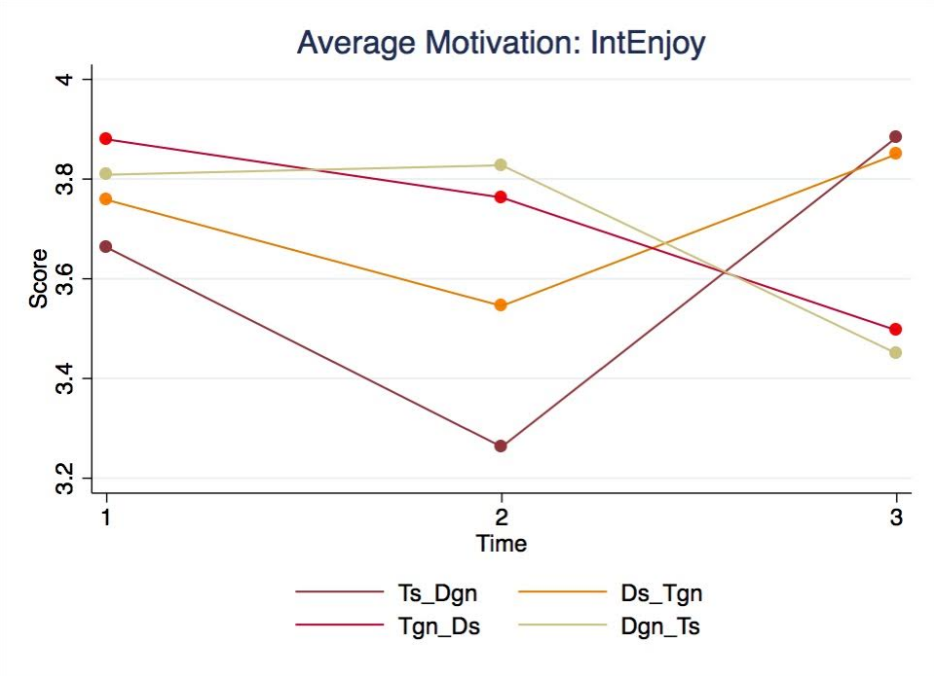


Figure 2
*Changes in Intrinsic Motivation by Progression: Interest and Enjoyment*

**Perceived Competence in reading scale.** This two-item sub-scale was also rated on the same 7-point Likert scale as the Interest and Enjoyment scale that was previously discussed. A person's self-perception of their competence is a precursor for self-efficacy (e.g. Schunk &

Pajares, 2002) that has been linked closely to academic achievement (Bandura, 1997). As previously discussed, as with the other Intrinsic Motivation for Reading scales, this one must be examined by progression due to the changes between readings (see Table 8).

Table 8

*Intrinsic Motivation for Reading Descriptive Statistics: Perceived Competence*

| | Pre-test (T1) | | | Post-test 1st play (T2) | | | Post-test 2nd play (T3) | | |
|---|---|---|---|---|---|---|---|---|---|
| Progression | *n* | *M* | *SD* | *n* | *M* | *SD* | *n* | *M* | *SD* |
| $T_s$–$D_g$ | 62 | 3.73 | 0.96 | 62 | 2.76 | 1.52 | 56 | 3.21 | 1.18 |
| $D_s$–$T_g$ | 60 | 3.74 | 1.05 | 55 | 2.96 | 1.58 | 56 | 3.33 | 1.72 |
| $T_g$–$D_s$ | 60 | 3.67 | 0.80 | 55 | 3.32 | 1.41 | 56 | 2.70 | 1.50 |
| $D_g$ – $T_s$ | 64 | 3.43 | 0.79 | 59 | 3.42 | 1.50 | 60 | 2.68 | 1.26 |

***Progressions with the script format first.*** The Ts—Dg Progression group showed a pre-test level of perceived competence as a reader ($M$ =3.73) that dropped significantly when these students read Ts first ($M$ = 2.76) and then reversed its progression and increased again after reading Dg second ($M$ = 3.21). The negative shift from pre-test to Ts was almost a full raw point ($\Delta M$ = -0.92) that could not be fully reversed by the reading of Dg ($\Delta M$ = 0.48; see Table 9). The initial drop from pre to Ts was found to not only be statistically significant ($p < 0.001$) but also had an effect size just shy of large ($d$ = 0.77). However, the reversal was found to not be statistically significant ($p$ = 0.071) and had an effect size of less than half of the initial reading ($d$ = 0.35). This negative to positive trajectory pattern was repeated in the Ds—Tg progression. Initially, this group had pre-test levels of perceived competence ($M$ = 3.74) followed by an initial decline in their self-perception after reading Ds ($M$ = 2.96) and then rebounded after Tg ($M$ = 3.33). The initial decline ($\Delta M$ = -0.74) was not fully reversed by the reversal in trajectory after Tg ($\Delta M$ = 0.43). As with the previous progression, the initial, negative decline was found to be statistically significant ($p < 0.001$), but the positive reversal was not ($p$ = 0.11). Similarly the effect sizes also varied from a nearly large effect from pre-test to Ds ($d$ = 0.71) to a small effect after Tg ($d$ = 0.33). This trend is clear and consistent across both of the script-fist progressions.

From this trend, one could interpret that the reading the script version of either play first causes significant, negative drops in students' self-concept as a reader. As the self-perception of competence increases again after reading a graphic novel version, it is possible to conclude that the graphic novel format does not pose the same level of threat to students' self-concept as a reader. Due to the fact that the scores after the reading (in either format) do not return to the same or higher levels as the pre-test, it is possible that reading Shakespeare is a difficult enough task for 10th grade students that their self-concept is impacted negatively by the original version that Shakespeare offered us.

***Progressions with the GN format first.*** The Tg—Ds progression group began by reporting pre-test perceived competence of reading that was similar to the other groups ($M$ = 3.67), which dropped slightly when they first read Tg ($M$ = 3.32) and then proceeded to drop more after reading the script version of *Dream* second ($M$ = 2.70). As with interest and enjoyment, a similar pattern is observed when examining the changes in self-perceived competence in reading. The Tg—Ds progression group achieved a negative effect between pre-test and reading Tg ($\Delta M$ = -0.32) followed by an additional drop ($\Delta M$ = -0.62) after reading Ds.

Despite the fact that the initial drop was not statistically significant ($p$ =0.125), the second decrease from Tg to Ds was found to be statistically significant ($p$ =0.008). As with the

Table 9

*Intrinsic Motivation for Reading Comparative Statistics: Perceived Competence*

| | Δ T1-T2 | | | Δ*M* T2-T3 | | |
|---|---|---|---|---|---|---|
| Progression | ΔM | *p* | *d* | ΔM | *p* | *d* |
| $T_s$–$D_g$ | -0.92 | 0.0001 | -0.77 | 0.48 | 0.07 | 0.35 |
| $D_s$–$T_g$ | -0.74 | 0.0005 | -0.71 | 0.43 | 0.11 | 0.33 |
| $T_g$–$D_s$ | -0.32 | 0.12 | -0.30 | -0.62 | 0.01 | -0.55 |
| $D_g$ – $T_s$ | 0.01 | 0.945 | 0.013 | -0.78 | 0.0001 | -0.82 |

statistical significance, the small effect size for the drop from Pre to Tg ($d$ =0.31) was much smaller than the moderate effect size for the drop from Tg to Ds ($d$ = 0.55). Therefore, the students' self perception of competence as a reader decreased at a statistically significant level when exposed to the script format rather than the graphic novel format.

This trend continued to be observed in the Dg—Ts progression. The pre-test scores ($M$ = 3.43) were minimally affected by reading Dg ($M$ = 3.42), but experienced a more significant decline after reading Ts ($M$ = 2.68). The initial, minimal decline ($\Delta M$ = -0.01) was found to not be statistically significant ($p$ = 0.945), nor have a significant effect size ($d$ = 0.01). However, the second reading ($\Delta M$ = -0.78) negatively impacted the participants' self-concept as a reader at a statistically significant ($p < 0.001$) and had a large effect size ($d$ = 0.82) on this measure.

These two progressions show that reading the graphic novel format first, unlike reading the script format first, yielded minimal negative effects on a student's self-concept as a reader, yet when they were exposed to the script format later, much larger, negative impacts were found. These drops are consistent with those observed in the script-first progressions in that the script format had a larger, negative impact than the graphic one. However, it appears that *The Tempest* script has the most negative impact, yet this is only marginally so when compared to the *Dream* script (see Figure 3). It is interesting that the *Tempest* had a similar impact as that found in the Interest and Enjoyment scale.

Overall, it appears that reading Shakespeare in the graphic format seems to be less of a threat to students' self-concept as readers. Further, this implies that the use of the graphic format may be able to mitigate some of the loss of self-concept that is experienced when reading Shakespeare in a 10$^{th}$-grade classroom. This possible protective factor of the format the text is presented in could be used to support readers in their interaction with more complex texts such as Shakespearian plays.

**Pressure and Tension felt while reading scale.** As with the two previous scales, this 2-item scale records students' responses on a 7-point Likert scale. However, unlike the two previous subscales of Intrinsic Motivation, this Pressure/Tension scale, it is more desirable to have lower scores as it is ideal for students to not feel pressure or tension when they are asked to read or intrinsically decide to read (see Table 10).

***Progressions with the script format first.*** The Ts—Dg progression pre-test ($M$ = 4.12) levels of Pressure and Tension were decreased after reading Ts ($M$ = 3.30), and then escalated again after reading Dg ($M$ = 3.86). The initial drop in the levels of pressure and tension

experienced from pre to Ts ($\Delta M$ = -0.70) produced a statistically significant ($p$ = 0.003) decline in these negative feelings that produced a moderate effect size ($d$ = 0.58) for the readers (see

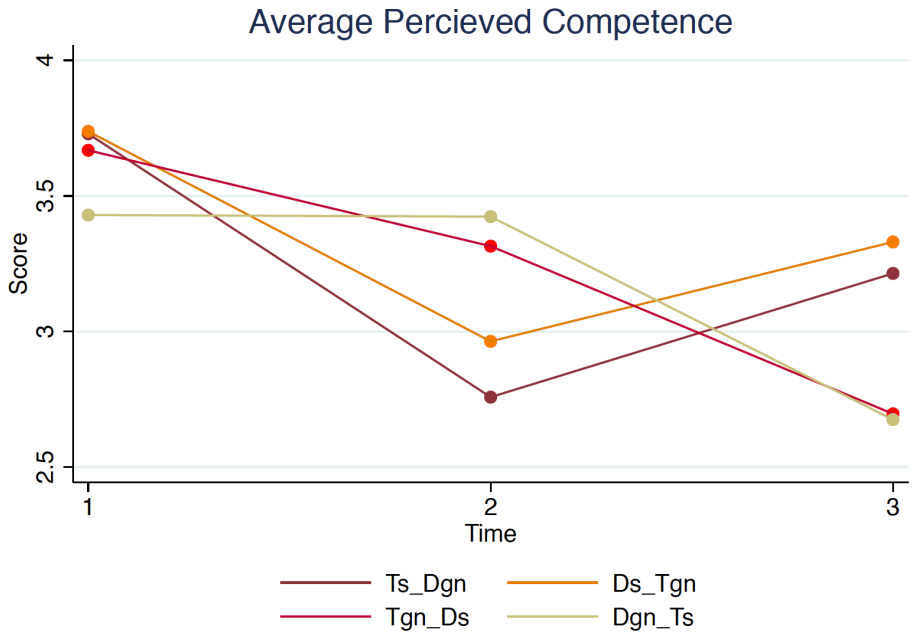


Figure 3
*Changes in Intrinsic Motivation by Progression: Perceived Competence*

Table 10
*Intrinsic Motivation for Reading Descriptive Statistics: Pressure and Tension*

| | Pre-test (T1) | | | Post-test 1st play (T2) | | | Post-test 2nd play (T3) | | |
|---|---|---|---|---|---|---|---|---|---|
| Progression | *n* | *M* | *SD* | *n* | *M* | *SD* | *n* | *M* | *SD* |
| $T_s$–$D_g$ | 62 | 4.12 | 0.90 | 62 | 3.30 | 1.50 | 56 | 3.86 | 1.62 |
| $D_s$–$T_g$ | 61 | 4.21 | 0.79 | 55 | 3.67 | 1.56 | 56 | 3.58 | 1.72 |
| $T_g$–$D_s$ | 61 | 4.16 | 0.94 | 54 | 3.39 | 1.54 | 56 | 3.67 | 1.44 |
| $D_g$ – $T_s$ | 64 | 4.27 | 0.79 | 59 | 3.82 | 1.49 | 60 | 3.33 | 1.56 |

Table 11). However, their feeling of pressure and tension re-escalated after reading Dg ($\Delta M$ = 0.41) but not by a statistically significant amount ($p$ = 0.135). This increase had a small effect size ($d$ = 0.29) on the students after reading the graphic novel version of *Dream*.

This pattern was not observed again in the second progression in which the script was first made available to the students. In the Ds—Tg progression, pre-test levels of pressure and tension around reading ($M$ = 4.21) decreased after being exposed to Ds ($M$ = 3.67) and then decreased again after the Tg condition ($M$ = 3.58) was given to the students. The initial decline ($\Delta M$ = -0.56) was much sharper than the second decline ($\Delta M$ = -0.07). This is also reflected in the statistical significance of the first decline ($p$ =0.019) but not the second ($p$ =0.824), and the nearing moderate effect size ($d$ = 0.46) of the first drop and minimal effect of the second ($d$ = 0.04). These two initial progressions consistently show significant declines in pressure and tension after the first reading in the script format, yet different reactions are observed after the second reading.

***Progressions with the GN format first.*** The Tg—Ds progression began by reporting pre-test Pressure/Tension when reading scores ($M$ = 4.16) that also decreased after the initial reading of Tg ($M$ = 3.39), and then again increased the negative emotions after Ds ($M$ = 3.67). The initial decrease in pressure and tension ($\Delta M$ = -0.71) was over twice the later increase after reading Ds ($\Delta M$ = 0.35) of pressure and tension felt while reading. As with the previously discussed progressions within this scale, the initial decrease was statistically significant ($p$ = 0.006) whereas the impact of the second reading was not ($p$ = 0.225) found to be so. The initial exposure of Tg had a moderate effect size ($d$ = 0.56) in decreasing the pressure and tension felt while reading, whereas the increase caused by Ds was a small effect ($d$ = 0.25).

As with the script format first progressions, the Dg—Ts progression did not follow the same trend. The pre-test level ($M$ = 4.27) was decreased after reading Dg ($M$ = 3.82), and this was further deceased after reading Ts ($M$ = 3.33). The initial decline ($\Delta M$ = -0.39) was found to be just short of statistically significant ($p$ = 0.066) as was the second, additional decline ($\Delta M$ = -0.46; $p$ = 0.085). However, unlike any other previous progression the effects of both of these declines were nearly identically small ($d$ = 0.35 followed by $d$ = 0.33) in size.

Table 11

*Intrinsic Motivation for Reading Comparative Statistics: Pressure and Tension*

| | Δ T1-T2 | | | Δ*M* T2-T3 | | |
|---|---|---|---|---|---|---|
| Progression | ΔM | *p* | *d* | ΔM | *p* | *d* |
| $T_s$–$D_g$ | -0.70 | 0.003 | -0.58 | 0.41 | 0.14 | 0.29 |
| $D_s$–$T_g$ | -0.56 | 0.02 | -0.46 | -0.07 | 0.82 | -0.04 |
| $T_g$–$D_s$ | -0.71 | 0.006 | -0.56 | 0.35 | 0.23 | 0.25 |
| $D_g$ – $T_s$ | -0.39 | 0.07 | -0.35 | -0.46 | 0.09 | -0.33 |

Unlike the other progression analysis of Intrinsic Motivation scales, there is no clear pattern based on format that emerges in this scale. Interestingly, this appears to be the first scale to be more driven by the play than the format (graphed in Figure 4). In every progression, the most heightened feelings of pressure and tension (other than the pre-test levels) occurred after reading *Dream* in either format. This could be due to the complex opening of this play in which (comparatively), more characters are introduced to the reader. This finding is of particular interest due to the difficulty *Tempest* posed to the students in the previous two intrinsic motivation scales.

Further, it is unclear if students held higher levels of pressure and tension in the pre-test due to the fact that they did not know the rigor of the reading task they would be presented with, or if they reacted this way due to another factor not measured in this study. Of all intrinsic motivation scales, this was the least predictable and the one that appears to be less impacted by the format of the text.

**Transportation**

The transportation measure included in this study is modeled after the original tool designed by Green and Brock (2000), and measures the participants' feeling of being 'carried away' by the narrative. This scale is made up of three possible subscales to interpret the students' level of Transportation. The first 11 questions of this scale were general and could apply to any narrative, therefore, they are identical across the plays. The benefit of using this general tool is that it is possible to compare findings across plays and focus on format effects

exclusively when using it. The next six questions in the measure are play-specific and ask the reader to report on feelings they had about individual characters in the reading. This measure is

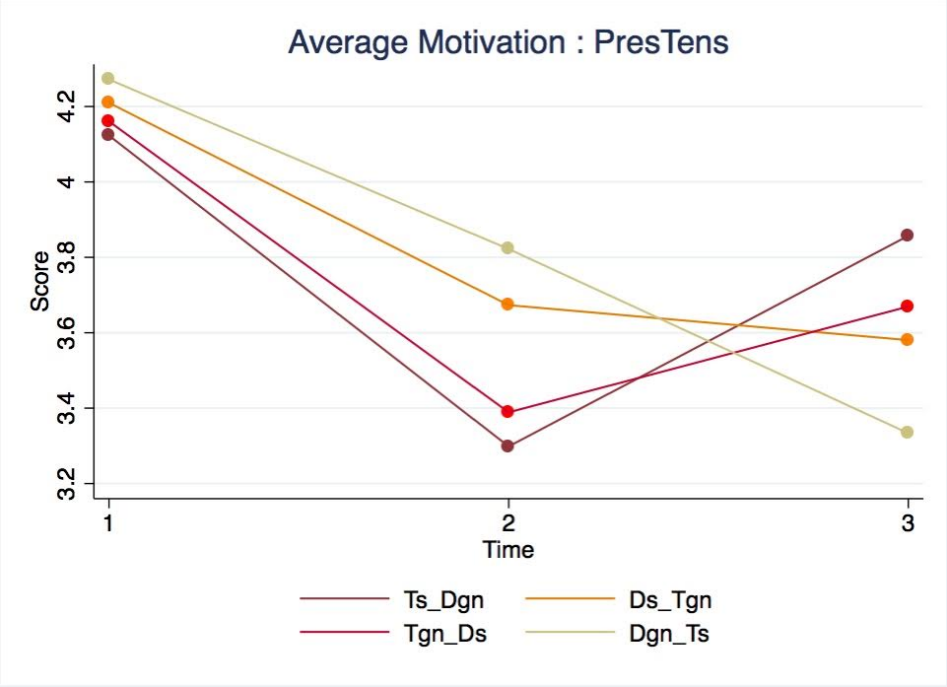


Figure 4
*Changes in Intrinsic Motivation by Progression: Pressure and Tension*

more useful when looking at the effect of the play on the students' feelings of transportation. Lastly these two scores can be combined for an overall Transportation score that would allow for a holistic perspective of the students' transportation in each of the four play-format combinations.

As Transportation shares some characteristics with Intrinsic Motivation, it was decided to examine this scale based on the four possible progressions as with three subscales of the IMI. As with the Intrinsic Motivation scales, this 7-point Likert scale (1: Not at all to 7: Very much), yet there is no pre-test, so the comparisons are conducted across format (first 11 questions) or play (the latter six questions). Analysis showed progression groups were not found to have statistically significant association with transportation, therefore, the findings for this section collapsed across time to only examine the sample by format and/or play.

**General Transportation.** Because the 11 questions on this scale being identical regardless of play read, it is possible to collapse the data across plays and focus on only the impact on format on the students' feeling of general Transportation (see Table 12). Students' mean general transportation score was higher ($M = 3.29$) when they read the graphic novel when compared to when they read a script ($M = 2.78$). The difference in general transportation ($\Delta M = 0.52$) was statistically significant ($p < 0.001$) and moderate effect size ($d = 0.66$). This suggests that the graphic novel format—regardless of play it depicted—was more conducive to feelings of general transportation in 10$^{th}$-grade students.

**Play-specific Transportation.** The General Transportation scale determined that the graphic format produced higher levels of transportation; therefore the play-specific items were examined to see if one of the plays may have been more elicited a greater transportation effect than the other for 10$^{th}$-grade-students. The remaining six items were examined by play only to

better understand if there was one play that was more engaging than the other. These remaining six items focused on the students' investment and interest in play-specific characters only and

Table 12

*General Transportation Scale*

| Script | | | Graphic Novel | | | Format Change | | |
|---|---|---|---|---|---|---|---|---|
| *n* | *M* | *SD* | *n* | *M* | *SD* | Δ *M* | *p* | *d* |
| 231 | 2.78 | 0.93 | 228 | 3.29 | 0.96 | 0.52 | <0.0001 | 0.66 |

did not include the broader questions that probed interest in plot, themes and the narrative as a whole (see Table 13). The students' transportation with the specific characters of *Tempest* ($M$ = 2.90) was lower than the same students' transportation with the characters of *Dream* ($M$ = 3.34). The difference between these two levels of transportation ($\Delta M$ = 0.41) was found to be statistically significant ($p$ = 0.012), and also have a small effect size ($d$ = 0.25). This demonstrates that students found themselves more transported into the narrative of *Dream* rather than that of *Tempest*.

Table 13

*Transportation Play-Specific scale by Play*

| Dream | | | Tempest | | | Change between plays | | |
|---|---|---|---|---|---|---|---|---|
| *n* | *M* | *SD* | *n* | *M* | *SD* | Δ *M* | *p* | *d* |
| 226 | 3.34 | 1.82 | 227 | 2.90 | 1.79 | 0.41 | 0.012 | 0.25 |

**Overall Transportation.** The combination of the two scales produces a single score that encapsulates students' overall feelings of transportation into each narrative. By combining the scales, one is able to better understand not only the students' interest in the characters of the narratives (as with the Play-specific items), but also how they engaged with the general themes, pacing and interest in the narrative. Due to incorporating the play-specific items, these results must be reported out by play as well as format as can be seen in Table 14. The mean Overall Composite scale for students who read the graphic novel version of *Dream* ($M$ = 3.51) was higher ($\Delta M$ = 0.72) than that of the students who read the same play in the script format ($M$ = 2.80). This difference between formats was found to be statistically significant ($p < 0.001$) and have a medium effect size ($d$ = 0.63) as can bee seen in Table 15. The difference in mean Overall Composite Transportation was similar when students reading *Tempest* were examined. Those students who read the graphic novel version reported a mean level of composite transportation ($M$ = 3.19) that was also higher ($\Delta M$ = 0.60) than those students who read the play in the script format ($M$ = 2.58). Similar to the difference between the means for each format observed in *Dream* the findings of the students' Composite Transportation for *Tempest* were statistically significant ($p < 0.001$) and a medium effect size ($d$ = 0.55).

It is of interest to note that despite the significant preference expressed for *Dream* by students in the play-specific scale, when the format-by-play view is examined the graphic novel version of *Tempest* has higher mean scores than the script version of *Dream*. Due to this finding it is possible to hypothesize that feelings of Transportation are more closely linked to the format rather than the specific play the students read. Further, this shows that it is possible for a text

that may not 'carry-away' students in a script format to become more transportative in the graphic novel format despite the written words not varying. This finding could be of particular

Table 14
*Transportation Composite raw scores*

| | Graphic Format | | | Script Format | | |
|---|---|---|---|---|---|---|
| Play | *N* | *M* | SD | *N* | *M* | SD |
| *Dream* | 118 | 3.51 | 1.19 | 110 | 2.80 | 1.06 |
| *Tempest* | 110 | 3.19 | 1.22 | 124 | 2.58 | 0.99 |

Table 15
*Average Change in Transportation Composite by Format in each Play*

| | Change Graphic-Script | | |
|---|---|---|---|
| Play | ΔM | *p* | *d* |
| *Dream* | 0.72 | <0.001 | 0.63 |
| *Tempest* | 0.60 | <0.001 | 0.55 |

interest for classroom teachers who are experiencing difficulty with engaging all students with the traditional text-only version of a particular narrative.

In summary, the three transportation scales showed that students felt more transported into the graphic novel format than they did into the script format by a statistically significant margin. Further, when comparing the narratives, it appears that although the characters of *Dream* were found to create more feelings of transportation, the narrative as a whole (beyond just the characters) also transported more than the *Tempest* narrative. However, this finding was significantly altered by the format in which the play was presented. Although *Tempest* was not the preferred narrative, if presented in the graphic novel format, it was rated as more transportative than the *Dream* script—but did not quite reach the same level of transportation of the *Dream* graphic novel.

## Impact of Format on the Performance of English Language Learners

The secondary research question of this study examined if the aforementioned effects of the format on any of the four outcome variables (targeted academic vocabulary growth, comprehension, intrinsic motivation and transportation) were different for English Language Learners (ELL) students when compared to their English Only (EO) peers. This difference in learning was examined by dividing the students by English learner status and examining the data to see if any differences existed for ELL students in comparison to their EO peers. This area of investigation re-examined all four of the previous outcome variables, while also considering the possible impact of being an ELL may have had on the findings.

### Vocabulary

When the whole sample was initially examined it was found that students learned targeted academic vocabulary at a rate that was statistically significant when reading both plays. Further it was found that students learned this vocabulary at rates that were not statistically significantly different depending on the format. In short, the overall 10$^{th}$-grade-student sample

was able to make vocabulary gains equally well across the format of the plays. When the sample was examined by language status, vocabulary gains were observed in all play-format-status combinations (with one exception) as was observed in the whole group analysis (see Table 14).

Table 16

*Target Academic Language Change in Raw Scores Pre- to Post-Test (out of 20) by Language Learner Status*

| | ELL | | | | | | EO | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pre-Test | | | Post-Test | | | Pre-Test | | | Post-Test | | |
| Format | *n* | *M* | SD | *n* | *M* | SD | *n* | *M* | SD | *n* | *M* | SD |
| A Midsummer Night's Dream | | | | | | | | | | | | |
| Overall | 116 | 11.22 | 3.69 | 111 | 11.23 | 3.68 | 127 | 11.17 | 3.74 | 118 | 12.19 | 3.67 |
| Script | 65 | 9.18 | 2.87 | 61 | 10.26 | 3.31 | 69 | 11.51 | 3.60 | 61 | 12.75 | 3.57 |
| GN | 51 | 10.24 | 2.53 | 46 | 10.70 | 3.01 | 58 | 10.76 | 3.89 | 57 | 11.60 | 3.71 |
| The Tempest | | | | | | | | | | | | |
| Overall | 116 | 9.65 | 2.76 | 107 | 10.45 | 3.17 | 127 | 10.06 | 3.17 | 122 | 10.60 | 3.58 |
| Script | 47 | 10.34 | 2.68 | 47 | 10.63 | 2.94 | 58 | 9.52 | 3.27 | 56 | 9.86 | 3.65 |
| GN | 59 | 9.27 | 2.89 | 59 | 10.24 | 3.36 | 69 | 10.52 | 3.03 | 66 | 11.23 | 3.41 |

When examining the gains by play, regardless of format, ELL students made minimal incidental gains in their vocabulary ($\Delta M = 0.01$) by reading *Dream* when compared to the gains they made after reading *Tempest* ($\Delta M = 0.67$). Due to this difference in growth, only the gains made by reading *Tempest* were found to be statistically significant ($p = 0.01$) or have a small effect size ($d = 0.35$). This differed from statistically significant findings found in both plays in the general sample (see Table 15).

Table 17

*Target Academic Language Change Pre- to Post-Test Analysis by Language Learner Status*

| | ELL | | | | EO | | | |
|---|---|---|---|---|---|---|---|---|
| Format | *n* | $\Delta M$ | *p* | *d* | *n* | $\Delta M$ | *p* | *d* |
| A Midsummer Night's Dream | | | | | | | | |
| Overall | 110 | 0.01 | 0.98 | >0.01 | 118 | 0.97 | 0.0003 | 0.49 |
| Script | 52 | -0.23 | 0.60 | -0.10 | 61 | 1.21 | 0.0008 | 0.64 |
| Graphic Novel | 58 | 0.22 | 0.59 | 0.06 | 57 | 0.70 | 0.07 | 0.35 |
| The Tempest | | | | | | | | |
| Overall | 106 | 0.67 | 0.01 | 0.35 | 122 | 0.61 | 0.02 | 0.16 |
| Script | 47 | 1.00 | 0.0037 | 0.55 | 56 | 0.45 | 0.33 | 0.18 |
| Graphic Novel | 59 | 0.22 | 0.60 | 0.11 | 66 | 0.74 | 0.03 | 0.39 |

This divergence from the whole sample findings continued for ELLs when the plays were examined by format. When reading *Dream*, ELL students appear to lose vocabulary knowledge after reading the script format ($\Delta M = 0.23$), and make vocabulary gains ($\Delta M = 0.22$) when reading the graphic novel format. These findings would suggest that ELLs might benefit from

the graphic format in academic vocabulary learning despite ELL students not making any statistically significant gains in vocabulary when reading *Dream* regardless of the format they were presented the play in.

However, this pattern does not hold when the two formats are examined for *Tempest*. ELL students reading the script format gained ($\Delta M = 1.00$) vocabulary while those reading the graphic novel format ($\Delta M = 0.22$) made smaller gains. It was only the gains made by the ELL students in the script condition that was considered statistically significant ($p = 0.004$) or found to have a moderate effect size ($d = 0.55$). This difference in findings between plays suggests that there maybe other differences between the plays that are inherent to the plays themselves that may be confounding the findings for the impact of the format on ELL vocabulary learning.

However, when EO students were examined, the trend observed in the general sample was replicated. The gains made by reading *Dream* were larger than the general sample ($\Delta M = 0.97$), while the gains made after reading *Tempest* ($\Delta M = 0.61$) more closely mirrored the general sample. When the format of the play was not considered, the gains made were statistically significant in both *Dream* ($p < 0.001$) and *Tempest* ($p = 0.02$). Yet, unlike the general sample, only the gains made by EO students when reading *Dream* had a small (just shy of moderate) effect size ($d = 0.49$).

Unlike the divergent ELL results from the overall sample, the EO gains of vocabulary knowledge followed the established trend more closely. Students from the sample that had EO status who read *Dream* in the script made significant vocabulary gains ($\Delta M = 1.21$) that were larger than those made in the graphic novel format ($\Delta M = 0.70$). The gains made in the script were not only statistically significant ($p < 0.001$) but also had a moderate effect size ($d = 64$). In comparison, the graphic novel readers did not make statistically significant gains ($p = 0.07$) but the reading of the play had a small effect size ($d = 0.35$). However, the format trends for EO reversed when reading *Tempest*. Those EO's who read the script version gained ($\Delta M = 0.45$), which was not a statistically significant gain ($p = 0.33$). Yet the EO students who read the graphic novel version had larger gains ($\Delta M = 0.74$) that were found to be statistically significant ($p = 0.03$) and have a small effect size ($d = 0.39$). This lack of pattern within the EO group in a format that is more consistently benefiting vocabulary gains suggests another variable—be it inherent to the play or to the students—possibly confounding these findings. Overall, when the variable of English language status was added to the model of analysis, there were no findings in the area of vocabulary growth that differed to a statistically significant level between the language groups.

Due to the methodology of this study, the EO students who read the Ds condition that made significant gains, are the same participants who made the largest gains from reading Tg. Therefore it is possible that the students who were assigned to conditions that read Ds and Tg may have had another variable in common that is not captured by examining vocabulary gains. This in combination with the ELL loss of existing vocabulary knowledge suggests that additional variables may have impacted vocabulary gains. Therefore, the gains by progression were examined for possible explanations (see Table 16).

**Progressions with the script format first.** The ELL Ts—Dg progression group showed a pre-test level of targeted Tempest academic vocabulary knowledge ($M = 9.61$) that increased after reading Ts first ($M = 10.21$). This increase in vocabulary ($\Delta M = 0.61$) was not found to be a statistically significant gain ($p = 0.22$) but it was found to have a small effect size ($d = 0.34$; see Table 17). This same ELL progression had pre-existing targeted Dream academic vocabulary ($M = 11.08$) that increased when they read Dg ($M = 11.35$). However the gains made by this group

($\Delta M = 0.27$) in the second reading were neither statistically significant ($p = 0.72$) nor had a significant effect size ($d = 0.10$).

Table 18

*Target Academic Language Raw Score Change Pre- to Post-Test by Progression and Language Status*

| | ELL | | | | | | EO | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pre-Test | | | Post-Test | | | Pre-Test | | | Post-Test | | |
| Play | *n* | *M* | *SD* | *n* | *M* | *SD* | *n* | *M* | *SD* | *n* | *M* | *SD* |
| Progression: Ts–Dg | | | | | | | | | | | | |
| Dream | 26 | 11.08 | 3.54 | 26 | 11.35 | 3.62 | 28 | 11.11 | 3.44 | 28 | 10.86 | 3.84 |
| Tempest | 28 | 9.61 | 2.91 | 28 | 10.21 | 3.15 | 29 | 9.14 | 2.84 | 29 | 9.72 | 3.48 |
| Progression: Ds–Tg | | | | | | | | | | | | |
| Dream | 28 | 11.93 | 3.40 | 28 | 11.50 | 3.28 | 27 | 11.78 | 3.72 | 27 | 12.93 | 3.46 |
| Tempest | 25 | 10.2 | 2.60 | 25 | 10.84 | 3.24 | 29 | 10.41 | 3.08 | 29 | 11.34 | 4.06 |
| Progression: Tg–Ds | | | | | | | | | | | | |
| Dream | 22 | 11.32 | 3.77 | 22 | 11.00 | 3.87 | 34 | 11.35 | 3.90 | 34 | 12.62 | 3.50 |
| Tempest | 20 | 10.65 | 2.76 | 20 | 10.35 | 2.74 | 37 | 10.54 | 3.11 | 37 | 11.14 | 2.86 |
| Progression: Dg–Ts | | | | | | | | | | | | |
| Dream | 32 | 10.63 | 3.93 | 32 | 10.81 | 4.13 | 29 | 10.69 | 4.13 | 29 | 12.31 | 3.52 |
| Tempest | 31 | 8.97 | 2.88 | 31 | 10.26 | 3.59 | 27 | 9.70 | 3.70 | 27 | 10.00 | 3.88 |

The EO students of the Ts—Dg progression demonstrated pre-existing knowledge of the targeted Tempest academic vocabulary ($M = 9.14$) that also increased ($M = 9.72$) after reading Ts. This growth ($\Delta M = 0.59$) was not statistically significant ($p = 0.31$), but did have a small effect size ($d = 0.27$). As they progressed to reading *Dream* the EO group began with pre-existing knowledge of targeted academic language from the play ($M = 11.11$) that decreased ($M = 10.86$) after being exposed to Dg. This decrease in knowledge ($\Delta M = 0.25$) was neither statistically significant ($p = 0.66$) nor had a reportable effect size ($d = 0.12$). However, this is a finding that is not expected for any format when considering the existing literature on incidental language learning.

The results in the Ds–Tg progression for ELL students showed a different trend than the ELL students in the previous progression had experienced. These students' existing academic vocabulary for *Dream* ($M = 11.93$) declined ($M = 11.50$) after reading the Ds condition. This decline ($\Delta M = 0.43$) was not found to be statistically significant ($p = 0.47$) but was found to have a very small effect size ($d = 0.19$). These ELL students' prior knowledge of the targeted *Tempest* vocabulary ($M = 10.20$) increased after reading Tg ($M = 10.84$) by a margin ($\Delta M = 0.64$) that was not statistically significant ($p = 0.31$) but did have a small effect size ($d = 0.30$).

By comparison, the EO students within this Ds—Tg progression experienced gains in their vocabulary knowledge from both formats. Their pre-existing *Dream* vocabulary ($M = 11.78$) increased after reading the script condition ($M = 12.93$). This increase ($\Delta M = 1.15$) was found to be statistically significant ($p = 0.001$) and have a large effect size ($d = 0.99$). This group of EO students also experienced large gains from their pre-existing knowledge of the

*Tempest* target vocabulary ($M = 10.41$) to their knowledge after reading Tg ($M = 11.34$). This increase ($\Delta M = 0.93$) was not as large as the gain made by this group after reading *Dream*. Further, it was not statistically significant ($p = 0.10$), yet it did have a small effect size ($d = 0.44$) on vocabulary learning.

These two initial progressions did not establish a clear trend regarding the benefits that a format could offer. Yet there were two declines in vocabulary knowledge that must be discussed. These declines should not occur as per the incidental learning literature. It is of interest to note that these declines were not experienced by only one language group, nor after reading a specific format. However, the two declines in vocabulary knowledge did occur after reading the same play—*Dream*. This is especially interesting due to the fact that the only statistically significant gain made in script first progressions was observed in the second progression EO subgroup that read *Dream* in the script format. Therefore, it appears as though the play, rather than the format, read may impact the student-participants in targeted academic vocabulary acquisition.

Table 19

*Target Academic Language Change by Progression and Language Status*

| | ELL Pre-Post Change | | | EO Pre-Post Change | | |
|---|---|---|---|---|---|---|
| Play | Δ *M* | *p* | *d* | Δ *M* | *p* | *d* |
| | | | Progression: Ts–Dg | | | |
| Dream | 0.27 | 0.72 | 0.10 | -0.25 | 0.66 | -0.12 |
| Tempest | 0.61 | 0.22 | 0.34 | 0.59 | 0.31 | 0.27 |
| | | | Progression: Ds–Tg | | | |
| Dream | -0.43 | 0.47 | -0.19 | 1.15 | 0.001 | 0.99 |
| Tempest | 0.64 | 0.31 | 0.30 | 0.93 | 0.10 | 0.44 |
| | | | Progression: Tg–Ds | | | |
| Dream | -0.03 | 0.63 | -0.15 | 1.26 | 0.03 | 0.54 |
| Tempest | -0.30 | 0.59 | -0.17 | 0.59 | 0.15 | 0.34 |
| | | | Progression: Dg–Ts | | | |
| Dream | 0.19 | 0.68 | 0.10 | 1.62 | 0.002 | 0.92 |
| Tempest | 1.29 | 0.01 | 0.71 | 0.30 | 0.69 | 0.11 |

**Progressions with the GN format first.** The third progression group examined was of Tg–Ds. In this progression, ELLs began with pre-test targeted Tempest academic vocabulary ($M = 10.65$), which dropped when students read Tg ($M = 10.35$). This decrease ($\Delta M = 0.30$) was not statistically significant ($p = 0.59$), and the effect size was very small ($d = 0.17$). Similarly, the ELL student's knowledge of the targeted academic vocabulary for *Dream* ($M = 11.32$) decreased after these students were exposed to Ds ($M = 11.00$). This decrease of targeted *Dream* academic vocabulary ($\Delta M = 0.32$) was not statistically significant ($p = 0.63$), nor did the impact demonstrate beyond a very small effect size ($d = 0.15$). Similarly, the EO students of this progression reported pre-reading levels of *Tempest* vocabulary ($M = 10.54$) that increased after reading Tg ($M = 11.14$). This growth ($\Delta M = 0.59$) was not statistically significant ($p = 0.15$), but did have a small effect ($d = 0.34$). In this progression, the EO students' pre-existing levels of targeted *Dream* academic vocabulary ($M = 11.35$) increased after reading Dg ($M = 12.62$). The

growth ($\Delta M = 1.26$) was statistically significant ($p = 0.03$) and had a moderate effect size ($d = 0.54$).

The last progression Dg–Ts, had ELL pre-reading levels of targeted *Dream* academic vocabulary ($M = 10.63$) that increased in raw score after reading Dg ($M = 10.81$). The gain that was observed ($\Delta M = 0.19$) for the ELLs of this progression was neither statistically significant ($p = 0.68$), nor had a notable effect size ($d = 0.10$). The pre-existing levels of knowledge for *Tempest*-targeted vocabulary for the ELL students in this progression ($M = 8.97$) increased ($\Delta M = 1.29$) after reading Ts ($M = 10.26$). This finding was statistically significant ($p = 0.01$), and was found to have a moderate effect size ($d = 0.71$). This pattern was reversed when the EO group was observed with their initial levels of targeted *Dream* vocabulary ($M = 10.69$) growing to ($M = 12.31$) after they read Dg. This gain in targeted academic vocabulary ($\Delta M = 1.62$) was the largest gain observed and was statistically significant ($p = 0.002$) and had a large effect size ($d = 0.92$). While the trajectory of the gains was the same when the EO subgroup read the *Tempest*, the size of the gains was smaller. The initial knowledge shown by this group ($M = 9.70$) increased some after reading Ts ($M = 10.00$). The observed gain ($\Delta M = 0.30$) was neither statistically significant ($p = 0.69$) nor had an effect size of note ($d = 0.11$).

Overall, the analyses for the two progressions that began with the graphic novel format did not reveal a consistent trend. Despite the students in the fourth progression showing similar growth trajectories across both plays, the ELL students' third progression provided the only instance in which neither play fostered vocabulary growth. Unlike what was observed in the script first conditions, in which the play read while losing vocabulary ability was the same, this third progression of ELL students had negative changes in levels of vocabulary for both *Tempest* and *Dream*.

Overall, the examination by progression showed mixed findings and unclear trends. Of the four instances of decreased vocabulary knowledge, three were observed within an ELL grouping. Further, three of those four decreases were observed when students read *Dream*, rather than *Tempest*. The format did not appear to have any role in this decrease, as two of the declines occurred after reading a graphic novel, and two after reading a script. Similarly, an even split occurred between first and second readings, leading to the conclusion that the ordering did not have a significant impact on the declines. Of all of the observed growth, there were only four instances in which the results were found to be statistically significant. Three of the four times when growth was significant, the growth occurred after incidentally learning from *Dream*. The format also appears to have minimal impact as three of the four instances when significant growth occurred, the students had read the script format. The findings were similarly mixed for the language status of the students, with three of the groups that experienced significant growth were EO students.

When considering effect sizes, there were nine instances in which the effect size as measured by Cohen's *d* was found to be meaningful. These ranged from small to large effect sizes, yet they had a tendency to be more likely to be a product of EO learners (six of the nine instances). They also were more likely to reach meaningful levels if the growth occurred in the targeted *Tempest* academic vocabulary (six of the nine instances). In comparison, the format the plays were read in did not seem to impact reaching this level of growth —five instances occurring in script conditions. Similarly, there was no clear trend if the growth was more likely to have a meaningful effect size if it was the first or second play read in the progressions.

It is of interest to note that all of these groupings—regardless of language status—showed lower initial scores for pre-existing target academic vocabulary for *Tempest* target words

than the targeted words in *Dream*. This is interesting due to the fact that perhaps the students who participated had less prior knowledge of the words targeted in *Tempest* and this may have impacted their learning in ways that were not measured in this analysis. At this time, it is unclear if the breakdown by progression as well as English language status created groups that were too small to produce more statistically significant findings, or yield more clear conclusions.

**Comprehension**

The whole sample analysis of the comprehension observed raw comprehension scores in both plays that were higher for those students who read the graphic novel version of the plays. This trend was similarly observed when the progressions of the whole sample were examined individually. Further, this trend continues in the raw scores of both ELLs and EOs (see Table 18). The raw comprehension score for ELLs for *Dream* ($M = 2.55$) and *Tempest* ($M = 2.18$) are similar to the raw scores of EOs for *Dream* ($M = 2.54$) and *Tempest* ($M = 2.57$). The almost identical *Dream* scores draw attention to the nearly third of a point difference for the different language status groups when comprehending *Tempest*. This would suggest that ELL students may have had a more difficult time understanding *Tempest* in comparison to their EO peers, while the content of *Dream* did not prove as troublesome.

Table 20

*Reading Comprehension Raw Scores Whole sample by Play and Language Status*

| | ELL | | | EO | | |
|---|---|---|---|---|---|---|
| Play | *n* | *M* | SD | *n* | *M* | SD |
| Dream | 117 | 2.55 | 1.85 | 127 | 2.54 | 1.87 |
| Tempest | 117 | 2.18 | 1.64 | 127 | 2.57 | 1.60 |

When examining the impact of format of the play on comprehension for the differing language status students, the trend is quite similar to that of the whole sample (see Table 19). The *Dream* raw scores by format and language status show that ELLs and EOs both score higher in the graphic novel format ($M = 2.59$; $M = 2.72$ respectively) when compared to the script condition ($M = 2.46$; $M = 2.38$). The difference between script and graphic novel format for ELL's reading *Dream* ($\Delta M = 0.09$) was very small, and was not statistically significant ($p = 0.80$), nor had a meaningful effect size ($d = 0.05$). In comparison the difference between script and graphic format for EO students reading *Dream* ($\Delta M = 0.35$) was larger, than their ELL counterparts, yet it as also not statistically significant ($p = 0.30$) but did have a very small effect size ($d = 0.19$).

Similarly, the *Tempest* raw scores show the same pattern for ELL and EO students in the sample, with the level of comprehension in the graphic novel format ($M = 2.52$; $M = 2.87$ respectively) being higher than the comprehension in the script format ($M = 1.89$; $M = 2.21$) when comparing raw scores. As with the whole group analysis, the ELL *Tempest* graphic novel scores were higher ($\Delta M = 0.61$) at a level that was statistically significance ($p = 0.045$) and had a small effect size ($d = 0.38$). This was mirrored in the EO *Tempest* scores that were different between formats ($\Delta M = 0.66$) at a level that were also both statistically significant ($p = 0.02$) and had a small effect size ($d = 0.42$). It is important to note that the differences between formats are not statistically significant between EOs and ELLs.

Table 21
*Reading Comprehension Raw Scores (out of 6) by Language Status*

| | *Post-Script* | | | *Post-Graphic Novel* | | |
|---|---|---|---|---|---|---|
| Language Status | *n* | *M* | *SD* | *n* | *M* | *SD* |
| | | | Dream | | | |
| ELL | 52 | 2.46 | 1.78 | 63 | 2.59 | 1.94 |
| EO | 69 | 2.38 | 1.83 | 58 | 2.72 | 1.92 |
| | | | Tempest | | | |
| ELL | 63 | 1.89 | 1.53 | 52 | 2.52 | 1.75 |
| EO | 58 | 2.21 | 1.68 | 69 | 2.87 | 1.47 |

**Intrinsic Motivation for Reading**

With the academic variables reacting very similarly to the whole group analysis when examined by English language status when compared to the whole group analysis, the focus then turned to the psychosocial variables for examination with the English learner status lens.

**Interest and Enjoyment of reading scale.** In the whole group analysis of this variable, it was found that when students read the script first, their Interest and Enjoyment of Reading dropped significantly and their levels rebounded some times higher than the initial levels of the pre-test after reading the graphic novel exposure. However, when students read the graphic novel format first, they did not score higher than initial levels after the first reading, but they did experience a similar, significant drop in Interest and Enjoyment of Reading after being exposed to the script second. These trends appeared consistent regardless of the play ordering, showing a format dependent effect. This analysis was conducted by progression to examine if ELL and EO students status impacted their Interest and Enjoyment of Reading (see Table 20) on this five-item scale self-perception Likert Scale (1: Not true at all about me to 7: Very true about me).

***Progressions with the script format first.*** The ELL Ts—Dg progression group showed a pre-test level of interest and enjoyment ($M$ = 3.80) that dropped when they read the Ts first ($M$ = 3.39) and then increased again beyond pre-test levels after reading Dg second ($M$ = 4.11). Similarly, the EO group of this progression reported a similar trend, beginning with a pre-test level ($M$ = 3.60), which dropped after reading the script ($M$ = 3.07) and then rose after the graphic novel exposure ($M$ = 3.73). The difference in means was examined between pre-test and the first reading, and then again between the first reading and the second reading for each progression to determine statistical significance and the size of the effect of each format (see Table 21).

A significant negative effect occurred between pre-test levels of Interest and Enjoyment and those reported after reading Ts for both ELLs ($\Delta M$ = -0.26) and EOs ($\Delta M$ = -0.51) that was followed by a significant reversal of the drop after students were asked to read Dg, again for both ELLs ($\Delta M$ = 0.67) and EOs ($\Delta M$ = 0.66). Despite following the whole group trend, not all of these changes were statistically significant. For ELL students, the initial decline in Interest and Enjoyment of Reading was not statistically significant ($p$ = 0.11), yet the increase after reading the graphic novel was significant ($p$ = 0.004). These changes were reflected in an initial small effect size ($d$ = 0.46) and a secondary large effect ($d$ = 0.92). When examining the EO group, both the initial changes in self-perception after reading the script ($p$ = 0.029; $d$ = 0.61) and the second after reading the graphic novel ($p$ = 0.027; $d$ = 0.63) were statistically significant and had a moderate effect size. This progression followed the pattern previously established.

Table 22

*Intrinsic Motivation for Reading Descriptive Statistics by Language Status: Interest and Enjoyment*

| | Pre-test (T1) | | | Post-test 1st play (T2) | | | Post-test 2nd play (T3) | | |
|---|---|---|---|---|---|---|---|---|---|
| Progression | *n* | *M* | *SD* | *n* | *M* | *SD* | *n* | *M* | *SD* |
| English Language Learners | | | | | | | | | |
| $T_s$–$D_g$ | 29 | 3.80 | 0.62 | 28 | 3.39 | 0.95 | 25 | 4.11 | 1.25 |
| $D_s$–$T_g$ | 29 | 3.66 | 0.68 | 28 | 3.48 | 1.04 | 27 | 3.57 | 0.79 |
| $T_g$–$D_s$ | 22 | 3.86 | 0.76 | 19 | 3.83 | 0.95 | 21 | 3.40 | 1.07 |
| $D_g$ – $T_s$ | 32 | 3.97 | 0.57 | 28 | 3.80 | 0.98 | 30 | 3.40 | 0.85 |
| English Only | | | | | | | | | |
| $T_s$–$D_g$ | 29 | 3.60 | 0.77 | 28 | 3.07 | 0.72 | 28 | 3.73 | 1.13 |
| $D_s$–$T_g$ | 30 | 3.82 | 0.56 | 25 | 3.70 | 0.78 | 28 | 4.16 | 1.05 |
| $T_g$–$D_s$ | 38 | 3.85 | 0.65 | 34 | 3.74 | 0.74 | 34 | 3.59 | 0.87 |
| $D_g$ – $T_s$ | 29 | 3.68 | 0.75 | 27 | 3.80 | 0.92 | 26 | 3.47 | 0.78 |

The results in the Ds–Tg progression for ELL students showed the same trend of an initial drop from pre-test ($M = 3.66$) to the Ds condition ($M = 3.48$) followed by a subsequent reversal after reading Tg ($M = 3.57$), however, this rebound did not elevate beyond the initially established levels in the pre-test. In the same progression group, EO students reported a pre-test level of Interest and Enjoyment ($M = 3.82$) that dropped after reading the script condition ($M = 3.70$) and then rose again after the graphic novel reading ($M = 4.16$) to a level higher than initially noted. Unlike the initial progression group, neither initial drop in mean scores was statistically significant, for ELL ($\Delta M = 0.17$; $p = 0.47$) or EO students ($\Delta M = 0.10$; $p = 0.56$). Further, ELL students did not experience a statistically significant change in mean after reading the graphic novel ($\Delta M = 0.13$; $p = 0.53$), despite the positive change in trajectory of their reported Interest and Enjoyment of Reading. However, the EO students did experience a larger shift in mean self-report ($\Delta M = 0.54$) that was statistically significant ($p = 0.03$) and had a moderate effect size ($d = 0.67$)

These two initial progressions followed the trend established by the initial analysis of the whole group by both groups reporting a drop in Interest and Enjoyment after the initial reading of the script version of the play and then reporting a resurgence of feelings of Interest and Enjoyment of Reading after being exposed to the graphic novel reading. As with the whole sample, the EO students had statistically significant changes across the entire first progression and the second change in means in the second progression. However, the ELL students diverged from this trend by only having one change in mean that was statistically significant (in the first progression after reading the graphic novel). It is possible that despite the raw scores following the same trend, that the smaller sample size achieved by splitting the participants into English language status caused the minimal changes in the reduced group to not reach significance.

Table 23

*Intrinsic Motivation for Reading Comparative Statistics by Language Status: Interest and Enjoyment*

| | Change T1-T2 | | | Change T2-T3 | | |
|---|---|---|---|---|---|---|
| Progression | ΔM | *p* | *d* | ΔM | *p* | *d* |
| | | | ELL | | | |
| $T_s$–$D_g$ | -0.26 | 0.11 | -0.46 | 0.67 | 0.0042 | 0.92 |
| $D_s$–$T_g$ | -0.17 | 0.47 | -0.20 | 0.13 | 0.53 | 0.18 |
| $T_g$–$D_s$ | -0.06 | 0.78 | -0.09 | -0.44 | 0.20 | -0.45 |
| $D_g$ – $T_s$ | -0.07 | 0.78 | -0.08 | -0.39 | 0.03 | -0.62 |
| | | | EO | | | |
| $T_s$–$D_g$ | -0.51 | 0.029 | -0.61 | 0.66 | 0.0267 | 0.63 |
| $D_s$–$T_g$ | -0.10 | 0.565 | -0.17 | 0.54 | 0.029 | 0.67 |
| $T_g$–$D_s$ | -0.12 | 0.484 | -0.17 | -0.12 | 0.496 | -0.18 |
| $D_g$ – $T_s$ | 0.17 | 0.425 | 0.22 | -0.36 | 0.038 | -0.64 |

***Progressions with the GN format first.*** The third progression group examined was of Tg—Ds, where ELLs began with pre-test interest and enjoyment of reading ($M$ = 3.86), which dropped minimally when they first read Tg ($M$ = 3.83) and then proceeded to drop again after reading Ds ($M$ = 3.40). The initial decrease of interest and enjoyment ($\Delta M$ = -0.06) was not statistically significant ($p$ = 0.78), nor was the second decrease after reading Ds ($\Delta M$ = 0.44; $p$ = 0.20). Although these findings are not statistically significant, the second decrease—after reading Ds— did have a small effect size ($d$ = 0.45). Similarly, the EO students of this progression reported pre-test levels ($M$ = 3.85) of Interest and Enjoyment of Reading which declined slightly after reading Tg ($M$ = 3.74) and then again ($M$ = 3.59) after reading Ds. As with their ELL counterparts, the EO students did not have statistically significant declines in mean scores between pre-test and reading Tg ($\Delta M$ = 0.12; $p$ = 0.48), nor between reading Tg and Ds ($\Delta M$ = 0.12; $p$ = 0.50). Neither of these declines were found to have even a small effect (post-Tg $d$ = 0.17; post-Ds $d$ = 0.18), showing one of the first groups to not have significant changes in their Interest and Enjoyment of reading as they were exposed to different plays and formats.

The last progression Dg–Ts, had ELL pre-test levels of Interest and Enjoyment ($M$ = 3.97) that decreased in raw score after reading Dg ($M$ = 3.80) and then dropped again when Ts was read (M=3.40) last. The initial change after reading Dg ($\Delta M$ = 0.08) was minimal and was not found to be statistically significant ($p$ = 0.78), however, the Ts reading caused changes ($\Delta M$ = -0.39) in self-perception that reached a reliable level statistical significance ($p$ = 0.03). The same contrast is reflected in the effect sizes found in this progression in the insignificant ($d$ = 0.08) effect size of reading Dg compared to the moderate effect of reading Ts ($d$ = 0.62) on interest and enjoyment of reading. The EO student group in this progression provided pre-test information about their self-perception ($M$ = 3.68) that increased after reading Dg ($M$ = 3.80) and then decreased to levels below the pre-test after reading Ts ($M$ = 3.47). The initial increase in interest and enjoyment ($\Delta M$ = 0.17) was not statistically significant ($p$ = 0.42) but did have a small effect size ($d$ = 0.22). However, once EO students read Ts, the drop in interest and

enjoyment of reading ($\Delta M = 0.36$) was statistically significant ($p = 0.04$) and had a moderate effect size ($d = 0.64$).

Overall, this grouping of progressions that began with the graphic novel format of the plays showed a general trend that is similar to the whole group analysis for both the ELL and EO subgroup. This trend reflected in both ELL and EO groups shows very little change (both in terms of statistical significance or effect size) in self reported interest and enjoyment of reading in students from pre-test to graphic novel exposure. Yet, upon reading the second text in the script format, there is a more significant decline in all but one (EO students reading Ds second) of the examined groups. The script exposure that did cause statistically significant changes (Dg—Ts progression for both ELL and EO), in this progression that was observed to cause a similar effect on the whole participant group.

The consistency in the findings across progressions in this subscale, suggests that the graphic and script formats have very different impacts on students' interest and enjoyment of reading even when examining ELL and EO students. Further, as with the whole group analysis, the findings broken down by language status show that there is a difference in the impact of each format depending on the order in which the formats are read. It appears that once students have read the text-only script format, they are more likely to rebound close to or above pre-test levels of interest and enjoyment when given the graphic novel. However if given the graphic novel first, ELL and EO students generally rate themselves roughly at the same level of interest and enjoyment of reading after the first exposure. Yet, these same students' self-perceptions drop after reading the script to levels that are similar in raw scores to those who read the scripts first. Unlike the whole group analysis, there does not appear to be a clear trend in which play was associated with more severe decreases in interest and enjoyment of reading. Yet this could be due to the smaller sample size in each of these language status groups.

**Perceived Competence in reading scale.** The progressions of this two-item sub-scale of the Intrinsic Motivation Inventory were examined by English language status to better understand if students' home language impacted their self-perception of their competence as readers (see Table 22).

***Progressions with the script format first.*** The ELL students in the Ts—Dg Progression group showed a pre-test level of perceived competence as a reader ($M = 3.84$) that dropped significantly when these students read Ts first ($M = 3.34$) and then reversed its trend and increased after reading Dg second ($M = 3.58$). The negative shift from pre-test to Ts ($\Delta M = 0.41$) was not be fully reversed by the reading of Dg ($\Delta M = 0.08$). The initial drop from pre to Ts was found to not be statistically significant ($p = 0.18$) but had a small effect size ($d = 0.37$). However, the increase in raw score of perceived competence was found to also not be statistically significant ($p = 0.83$). Similarly, the EO students self-reported existing perceived competence levels ($M = 3.64$) that also decreased after reading Ts ($M = 2.14$) and then increased after reading Dg ($M = 2.95$). The initial decrease for EOs ($\Delta M = 1.44$) was not only statistically significant ($p < 0.001$) but also had a very large effect size ($d = 1.17$). The increase that occurred after reading Dg was also statistically significant ($p = 0.048$) and had a moderate effect size ($d = 0.55$) despite not returning to pre-test levels (see Table 23).

This negative to positive trajectory pattern was repeated in the Ds–Tg progression. Initially, the ELL group had pre-test levels of perceived competence ($M = 3.58$) followed by an initial decline in their self-perception after reading Ds ($M = 2.86$) and then rebounded slightly after Tg ($M = 2.89$). The initial decline ($\Delta M = -0.76$) was not fully reversed by the reversal in trajectory after Tg ($\Delta M = 0.08$). As with the previous progression, the initial, negative decline

Table 24

*Intrinsic Motivation for Reading Descriptive Statistics by Language Status: Perceived Competence*

| | Pre-test (T1) | | | Post-test 1st play (T2) | | | Post-test 2nd play (T3) | | |
|---|---|---|---|---|---|---|---|---|---|
| Progression | *n* | *M* | *SD* | *n* | *M* | *SD* | *n* | *M* | *SD* |
| English Language Learners | | | | | | | | | |
| $T_s$–$D_g$ | 29 | 3.84 | 0.99 | 28 | 3.34 | 1.54 | 25 | 3.58 | 1.86 |
| $D_s$–$T_g$ | 28 | 3.58 | 0.98 | 28 | 2.86 | 1.64 | 27 | 2.89 | 1.39 |
| $T_g$–$D_s$ | 22 | 3.71 | 0.88 | 19 | 3.08 | 1.44 | 21 | 2.74 | 1.76 |
| $D_g$ – $T_s$ | 32 | 3.40 | 0.79 | 28 | 3.38 | 1.48 | 30 | 2.73 | 1.14 |
| English Only | | | | | | | | | |
| $T_s$–$D_g$ | 29 | 3.64 | 0.96 | 28 | 2.14 | 1.32 | 28 | 2.95 | 1.62 |
| $D_s$–$T_g$ | 30 | 3.88 | 1.04 | 25 | 3.10 | 1.51 | 28 | 3.84 | 1.88 |
| $T_g$–$D_s$ | 37 | 3.64 | 0.77 | 34 | 3.43 | 1.41 | 34 | 2.72 | 1.34 |
| $D_g$ – $T_s$ | 29 | 3.55 | 0.79 | 27 | 3.41 | 1.65 | 26 | 2.54 | 1.41 |

was found to be statistically significant ($p = 0.02$), but the positive rebound was not ($p = 0.79$). Similarly the effect sizes also varied from a moderate effect from pre to Ds ($d = 0.66$) to a negligible effect after Tg ($d = 0.08$). The EO students in this progression similarly experienced a sharp initial decline from pre-test ($M = 3.88$) to after reading Ds ($M = 3.10$) and then a strong resurgence ($M = 3.84$) of perceived competence. This initial decline ($\Delta M = 0.70$) was overshadowed by the positive resurgence of perceived competence ($\Delta M = 0.83$) after the graphic novel exposure. When examining these EO student perceptions, only the initial shift was statistically significant ($p = 0.0196$) while the secondary increase ($p = 0.08$) was not. Yet, both of these changes had moderate effect sizes ($d = 0.71$ followed by $d = 0.53$). This trend of initial decrease in perceived competence as a reader after reading either play in the script format, followed by an increase in self-perception after reading a play in the graphic novel format is clear and consistent in the raw scores of both ELLs and EOs which match the findings of the whole group.

As with the whole group, this trend; the initial negative drop in students' self-reported perceived competence as a reader occurs to a similar extent regardless of what play is read, followed by an increase after the graphic novel exposure holds true across the two levels of English language status (EO vs ELL). This suggests that there is more significant impact on the students' perceived competence due to the format they are reading a Shakespeare play in than the actual content of the play. Yet, exposure to either Shakespeare play in either format, does appear to negatively impact 10th grade-students' perceived competence as readers compared to their initial self-report prior to reading either play.

***Progressions with the GN format first.*** The ELL students in the Tg—Ds progression group began by reporting pre-test perceived competence of reading ($M = 3.71$), which dropped when they first read Tg ($M = 3.08$) and then proceeded to drop more after reading the script version of *Dream* second ($M = 2.74$). The ELL students reported negative impacts after reading Tg ($\Delta M = 0.54$) followed by an additional drop ($\Delta M = -0.39$) after reading Ds. Despite the fact that neither drop was statistically significant—initially ($p = 0.15$), followed by ($p = 0.39$)— both changes were found to have a small effect size ($d = 0.48$ followed by $d = 0.29$). This trend in

Table 25

*Intrinsic Motivation for Reading Comparative Statistics by Language Status: Perceived Competence*

| | Change T1-T2 | | | Change T2-T3 | | |
|---|---|---|---|---|---|---|
| Progression | ΔM | *p* | *d* | ΔM | *p* | *d* |
| | | | ELL | | | |
| $T_s$–$D_g$ | -0.41 | 0.18 | -0.37 | 0.08 | 0.83 | 0.06 |
| $D_s$–$T_g$ | -0.76 | 0.02 | -0.66 | 0.08 | 0.79 | 0.08 |
| $T_g$–$D_s$ | -0.54 | 0.16 | -0.48 | -0.39 | 0.39 | -0.29 |
| $D_g$ – $T_s$ | 0.03 | 0.928 | 0.02 | -0.69 | 0.02 | -0.68 |
| | | | EO | | | |
| $T_s$–$D_g$ | -1.44 | 0.0002 | -1.17 | 0.80 | 0.048 | 0.55 |
| $D_s$–$T_g$ | -0.7 | 0.0196 | -0.71 | 0.83 | 0.081 | 0.53 |
| $T_g$–$D_s$ | -0.20 | 0.430 | -0.20 | -0.68 | 0.010 | -0.70 |
| $D_g$ – $T_s$ | -0.14 | 0.634 | -0.13 | -0.90 | 0.002 | -0.99 |

feelings of competence was also found in the EO students whose initial levels ($M$ = 3.64) declined after reading Tg ($M$ = 3.43), and then declined more sharply after the Ds exposure ($M$ = 2.72). The first decline in perceived competence ($\Delta M$ = 0.20) was found to not be statistically significant ($p$ = 0.43), and had a small effect size ($d$ = 0.20). The second decline ($\Delta M$ = 0.68) was statistically significant ($p$ = 0.01) and had moderate effect size ($d$ = 0.70). This suggests that ELL and EO students' self perception of competence as a reader decreases in raw score when exposed to a Shakespeare play in the graphic novel format, and then continues to decline with the script exposure.

This trend continued to be observed in the ELL students in the Dg—Ts progression. The pre-test scores ($M$ = 3.40) were minimally, negatively affected by reading Dg ($M$ = 3.38), but experienced a more significant decline after reading Ts ($M$ = 2.73). The initial, minimal decline ($\Delta M$ = 0.03) was found to not be statistically significant ($p$ = 0.928), nor have a significant effect size ($d$ = 0.02). However, after the script exposure ($\Delta M$ = 0.69) negatively impacted the participants' self-concept as a reader at a statistically significant ($p$ = 0.02) and had a moderate effect size ($d$ = 0.68) on this measure. This trajectory continued to be observed in the EO sample of this progression. Initial scores of Perceived Competence as a Reader ($M$ = 3.55) declined slightly ($M$ = 3.41) after reading Dg, and then declined again ($M$ = 2.54) after reading Ts. The initial decline ($\Delta M$ = 0.14) was not statistically significant ($p$ = 0.63) and only had a very small effect size ($d$ = 0.13). However, the decline that occurred after reading Ts ($\Delta M$ = 0.90) was statistically significant ($p$ = 0.002) and had a large effect size ($d$ = 0.99).

This suggests that these last progressions, in which the graphic novel was read first, experienced minimal declines from reading either Shakespeare play in the graphic novel format, and then, for the most part, experienced more pronounced declines after reading the play in the script format. This whole group trend is replicated in both the ELL and EO student groups across progressions.

This was also the trend observed in the whole group, suggesting that English language status does not play a significant role in the Perceived Competence of Readers when reading Shakespearean plays in the graphic novel or script format. As was noted in the whole group, it

may also be possible to interpret these findings to conclude that the graphic format may be able to mitigate some of the loss of self-concept that is experienced when reading Shakespeare in a 10th-grade-classroom.

**Pressure and Tension felt while reading scale.** This two-item subscale of the Intrinsic Motivation Inventory differs from the two previous scales discussed in that it is more desirable to experience lower rates of Pressure and Tension while reading. With the two previous sub-scales, students' drops of Interest and Enjoyment or Perceived Competence were negatively interpreted, while increases were observed as beneficial to students. In this scale, declining scores speaks to students feeling less pressure and tension while reading (see Table 24).

Table 26

*Intrinsic Motivation for Reading Descriptive Statistics by Language Status: Pressure Tension*

| | Pre-test (T1) | | | Post-test 1st play (T2) | | | Post-test 2nd play (T3) | | |
|---|---|---|---|---|---|---|---|---|---|
| Progression | *n* | *M* | *SD* | *n* | *M* | *SD* | *n* | *M* | *SD* |
| English Language Learners | | | | | | | | | |
| $T_s$–$D_g$ | 29 | 4.47 | 0.73 | 28 | 3.30 | 1.32 | 25 | 4.00 | 1.80 |
| $D_s$–$T_g$ | 29 | 4.30 | 0.83 | 28 | 3.93 | 1.70 | 27 | 3.96 | 1.68 |
| $T_g$–$D_s$ | 22 | 4.01 | 1.10 | 19 | 3.13 | 1.70 | 21 | 3.79 | 1.55 |
| $D_g$ – $T_s$ | 32 | 4.26 | 0.85 | 28 | 3.82 | 1.80 | 30 | 3.45 | 1.61 |
| English Only | | | | | | | | | |
| $T_s$–$D_g$ | 29 | 3.82 | 0.97 | 28 | 3.54 | 1.62 | 28 | 3.79 | 1.46 |
| $D_s$–$T_g$ | 30 | 4.18 | 0.73 | 25 | 3.42 | 1.43 | 28 | 3.30 | 1.69 |
| $T_g$–$D_s$ | 38 | 4.27 | 0.84 | 34 | 3.51 | 1.48 | 34 | 3.68 | 1.34 |
| $D_g$ – $T_s$ | 29 | 4.27 | 0.74 | 27 | 3.72 | 1.20 | 26 | 3.19 | 1.62 |

***Progressions with the script format first.*** The ELL in the Ts—Dg progression had pre-test ($M$ = 4.47) levels of Pressure and Tension that were decreased after reading Ts ($M$ = 3.30), and then escalated again after reading Dg ($M$ = 4.00). The initial drop in the levels of pressure and tension experienced from pre to Ts ($\Delta M$ = 1.08) produced a statistically significant ($p$ = 0.0011) decline in these negative feelings that produced a large effect size ($d$ = 1.00) for the readers (see Table 25). However, their feeling of pressure and tension re-escalated after reading Dg ($\Delta M$ = 0.50) but not by a statistically significant amount ($p$ = 0.22). This increase had a small effect size ($d$ = 0.37) on the students after reading the graphic novel version of *Dream*. The EO students in this progression began with feelings of Pressure and Tension around reading ($M$ = 3.82) that also decreased after reading Ts ($M$ = 3.54), and then increased again after reading Dg ($M$ = 3.79) although not to pre-existing levels. Unlike the ELL cohort of this progression, the initial decline of the EO students ($\Delta M$ = 0.26) was not found to be statistically significant ($p$ = 0.46), but did have a small effect size ($d$ = 0.20). The increase of feelings of Pressure and Tension that occurred for EO students after reading Dg ($\Delta M$ = 0.25) were also found to not be statistically significant ($p$ = 0.54) and had a very small effect size ($d$ = 0.17). The observed pattern across both ELL and EO matched the overall trend of the Ts—Dg progression observed in the whole group.

However, the ELL and EO students in the Ds—Tg progression did not report similar trends in their feelings of Pressure and Tension for reading. This progression's ELL students

reported pre-existing levels of pressure and tension for reading ($M$ = 4.30) that decreased after reading Ds ($M$ = 3.93) and then minimally increased again after reading Tg ($M$ = 3.96). This first decrease ($\Delta M$ = 0.41) was of similar size as previously observed however, the secondary increase was much smaller ($\Delta M$ = 0.15) that observed in the first progression. The initial decrease was not found to be statistically significant ($p$ = 0.23) in a paired t-test, nor was the minimal increase after Tg ($p$ = 0.73). Although the decline was found to have a small effect size ($d$ = 0.33), the increase observed after the second reading exposure was not ($d$ = 0.10) found to have a small effect size. However, the EO sub-group of this progression was found to report a different trend. The EO group of students' pre-test levels of pressure and tension around reading ($M$ = 4.18) decreased after being exposed to Ds ($M$ = 3.42) and then decreased again after the Tg condition ($M$ = 3.30) was given to the students, as was observed with the whole group progression analysis. The initial decline ($\Delta M$ = 0.76) was much sharper than the second decline ($\Delta M$ = 0.19). This is also reflected in the statistical significance of the first decline ($p$ = 0.034) but not the second ($p$ = 0.67), and the moderate effect size ($d$ = 0.64) of the first drop and minimal effect of the second ($d$ = 0.12). The secondary decline in pressure and tension observed in this group was large enough that when the EO and ELL groups were treated as one group in the first round of analysis, the whole sample was observed having a secondary decline after reading Tg. These two initial progressions show significant declines in self-reported pressure and tension after the first reading in the script format, and different reactions are observed after the second reading.

Table 27

*Intrinsic Motivation for Reading Comparative Statistics by Language Status: Pressure Tension*

| | Change T1-T2 | | | Change T2-T3 | | |
|---|---|---|---|---|---|---|
| Progression | ΔM | *p* | *d* | ΔM | *p* | *d* |
| | | | ELL | | | |
| $T_s$–$D_g$ | -1.08 | 0.001 | -1.00 | 0.50 | 0.22 | 0.37 |
| $D_s$–$T_g$ | -0.41 | 0.232 | -0.33 | 0.15 | 0.73 | 0.10 |
| $T_g$–$D_s$ | -0.9 | 0.09 | -0.58 | 0.58 | 0.16 | 0.49 |
| $D_g$ – $T_s$ | -0.35 | 0.32 | -0.28 | -0.43 | 0.28 | -0.30 |
| | | | EO | | | |
| $T_s$–$D_g$ | -0.26 | 0.460 | -0.20 | 0.25 | 0.535 | 0.18 |
| $D_s$–$T_g$ | -0.76 | 0.034 | -0.64 | -0.19 | 0.6736 | -0.12 |
| $T_g$–$D_s$ | -0.64 | 0.025 | -0.57 | 0.32 | 0.411 | 0.21 |
| $D_g$ – $T_s$ | -0.51 | 0.077 | -0.50 | -0.40 | 0.356 | -0.27 |

***Progressions with the GN format first.*** The ELL sub-group of the Tg—Ds progression began by reporting pre-test pressure and tension for reading scores ($M$ = 4.01) that also decreased after the initial reading of Tg ($M$ = 3.13), and then again increased the negative emotions after Ds ($M$ = 3.79). The initial decrease in pressure and tension ($\Delta M$ = 0.90), was found to not be statistically significant ($p$ = 0.09) but have a moderate effect size ($d$ = -0.58). The later increase after reading Ds ($\Delta M$ = 0.58) of pressure and tension felt while reading was also found to not be statistically significant ($p$ = 0.16) but have a moderate effect size ($d$ = 0.49) as well. The EO students of this progression group initially reported feelings of pressure and tension felt for

reading ($M = 4.27$) that declined ($M = 3.51$) after reading Tg and then increased again ($M = 3.68$) after reading Ds. The decline ($\Delta M = 0.64$) was statistically significant ($p = 0.025$) and had a moderate effect size ($d = 0.57$). The increase in self-reported pressure and tension while reading ($\Delta M = 0.32$) was not statistically significant ($p = 0.41$), but a small effect size was observed ($d = 0.21$) for EO students in this progression.

For ELL students, the Dg—Ts progression did not follow the same trend. The pre-test level ($M = 4.26$) decreased after reading Dg ($M = 3.82$), and this was further deceased after reading Ts ($M = 3.45$). The initial decline ($\Delta M = 0.35$) was found to not be statistically significant ($p = 0.32$) as was the second, additional decline ($\Delta M = 0.43$; $p = 0.28$). However, as with previous progression where the changes in self-perception was not statistically significant the effect of both of these declines were both small ($d = 0.28$ followed by $d = 0.30$) in size. This continuing decline after each reading was a trend that was also observed in the EO students in this progression. This subgroup reported a decline in pressure and tension from their pre-test level ($M = 4.27$) to their self-perception after reading Dg ($M = 3.72$) and then again after reading their second play Ts ($M = 3.19$). The initial decline ($\Delta M = 0.51$) was found to not be statistically significant ($p = 0.77$) as was the second reduction ($\Delta M = 0.40$) in pressure and tension ($p = 0.36$). However, both of these decreases were found to have a moderate or small effect size ($d = 0.50$ initially and $d = 0.27$ subsequently) in the reduction of pressure and tension felt while reading. This progression—as this progression also did when examining the whole group—breaks from trends established by other progressions, making the impact of either the format or the play on a student's self-perception of Pressure and Tension felt while reading inconsistent.

As with the whole group analysis of the Pressure and Tension scale for reading, it is difficult to discern a consistent pattern across the four progressions. If examined from a play standpoint, there is no play that consistently increased or decreased feelings of Pressure and Tension. Neither is there a format that more consistently impacted the participants' self-report of feeling pressure or tension while reading. Rather, it appears that when examined by language status, the order is most relevant in these self-reports. Across the responses, the initial reading caused a drop in self-reports of feelings of pressure and tension. All statistically significant findings that were found in this analysis—regardless of language status group—occur in the decline from pre-test to first reading. Although the majority of responses after the second reading tended to reveal an increase in reported feelings of pressure and tensions, for the most part these never exceeded the initial pre-test levels. One plausible explanation is that the initial higher levels of pressure and tension experienced at pre-test level had more to do with not knowing what would be asked of them than the students' self-report once they know what would be expected.

A notable exception to this norm is the fourth progression group in which students continued to decrease in feelings of pressure and tension across language status groups in the reading of Ts after the initial decline after reading Dg. It is unclear why only one progression group would consistently and across language status groups, display such different tendencies from the other three progressions. Further analysis may be conducted to explore possible confounding or interacting effects of other variables.

**Transportation**

In the whole sample analysis of Transportation two key findings were discovered. The first was that students' feeling of general transportation were higher when they read graphic novels when compared to the general transportation felt when they read scripts of the same plays.

**General Transportation scale.** When looking at the feelings of General Transportation for the whole group, students reported higher feelings of transportation for the graphic novel format over the script format. The transportation outcomes were examined by language status to determine if there was any significant difference between ELL and EO students (see Table 26). ELL students' general transportation score was again higher ($M = 3.24$) when they read the graphic novel when compared to when they read a script ($M = 2.89$). The difference observed the ELL students within general transportation ($\Delta M = 0.35$) was statistically significant ($p < 0.001$) and small effect size ($d = 0.43$). This trend continued when the EO students' perspectives were examined. For EO students, the general transportation score for the graphic novel format ($M = 3.32$) was higher than these feelings in the script format ($M = 2.69$). The difference in transportation between the formats ($\Delta M = 0.66$) was also statistically significant ($p < 0.0001$) and was found to have a large effect size ($d = 0.83$). This suggests that the graphic novel format—regardless of play it depicted—was more conducive to feelings of general transportation in 10th-grade-students despite the language status of the students.

Table 28

*General Transportation Scale by language learner status*

| | Script | | | Graphic Novel | | | Format Change | | |
|---|---|---|---|---|---|---|---|---|---|
| Status | *n* | *M* | *SD* | *n* | *M* | *SD* | Δ *M* | *p* | *d* |
| ELL | 107 | 2.89 | 0.96 | 100 | 3.24 | 0.89 | 0.35 | 0.004 | 0.43 |
| EO | 113 | 2.69 | 0.92 | 119 | 3.32 | 0.99 | 0.66 | < 0.0001 | 0.83 |

In addition, at this time, English language status does not appear to have a statistically significant association with the level of general transportation felt by students, despite EO students having raw scores that were diverged more in response to format. Further, the progression order did not impact the students' feelings of general transportation in either format as it impacted the Intrinsic Motivation Inventories that were previously discussed.

**Play-Specific scale.** The General Transportation scale for both language status groups suggested that the graphic format produced higher levels of transportation. The play-specific items are examined to determine if there was a difference between the students' feelings of transportation based on the play that they read. The play-specific items focused on how much students connected or identified with characters specific to the play they had just read. Due to the study design, all students were exposed to both plays, therefore the following reports are of data produced by the same students in each language status group (see Table 27).

The ELL students' transportation with the specific characters of *Tempest* ($M = 2.85$) was lower than their feelings of transportation with the characters of *Dream* ($M = 3.33$). The difference in transportation between these plays ($\Delta M = 0.46$) was found to be statistically significant ($p = 0.05$), and also have a small effect size ($d = 0.28$). This demonstrates that ELL students found themselves more transported into the narrative of *Dream* rather than that of *Tempest*, which is commensurate with the findings of the whole group. When these findings are compared to those of their EO peers who experienced *Tempest* specific transportation ($M = 2.98$) that was also lower than the transportation experienced for *Dream* characters ($M = 3.29$). The difference between plays for EO's was smaller in raw score ($\Delta M = 0.30$), was also not statistically significant ($p = 0.21$), and it was found to have very small effect size ($d = 0.18$).

Table 29

*Transportation Play-Specific and Composite scale by Play and Language Learner Status*

| | Dream | | | Tempest | | | Change between plays | | |
|---|---|---|---|---|---|---|---|---|---|
| Status | *n* | *M* | *SD* | *n* | *M* | *SD* | Δ *M* | *p* | *d* |
| ELL | 104 | 3.33 | 1.75 | 102 | 2.85 | 1.74 | -0.46 | 0.0513 | -0.28 |
| EO | 113 | 3.29 | 1.90 | 114 | 2.98 | 1.87 | -0.30 | 0.2076 | -0.18 |

This analysis at the play-level demonstrated that the play read impacts both ELL and EO students with the same trend. Both of the language status groups showed higher levels of play-specific transportation with the characters in *Dream*. However at this time, it is only the ELL students who have a statistically significant different reaction between the plays. It is unclear why ELL students reacted more strongly to the difference in the characters presented by Shakespeare. However, it is important to note that ELL raw comprehension scores were also lower for *Tempest* than they were for *Dream*, therefore it is possible that the lack of understanding of the content lead to less engagement and transportation into *Tempest*.

**Overall composite Transportation scale.** The combination of the two previous scales produce a single score that can be used to encapsulates students' overall feelings of transportation into the narrative. Due to incorporating the play-specific items into the score, these results must be reported out by play as well as format. Both ELL and EO students followed the pattern observed with the whole sample in which the format the text was presented in held more sway in the feelings of Overall Transportation than the play in which either was read (see Table 30).

Table 30

*Transportation Composite raw scores by Language Status*

| | Graphic Format | | | Script Format | | |
|---|---|---|---|---|---|---|
| Language Status | *n* | *M* | *SD* | *n* | *M* | *SD* |
| | | | Dream | | | |
| ELL | 55 | 3.44 | 1.06 | 50 | 2.91 | 1.15 |
| EO | 55 | 3.55 | 1.35 | 59 | 2.70 | 0.99 |
| | | | Tempest | | | |
| ELL | 45 | 3.15 | 1.18 | 60 | 2.71 | 0.98 |
| EO | 64 | 3.25 | 1.24 | 54 | 2.43 | 1.01 |

This lens through which to examine not only the language status of the students but also the narrative and the format it is presented to provide for a granular interpretation of the many interacting forces on students' feelings of Transportation into a narrative. The ELL students' mean overall transportation into the graphic novel version of *Dream* ($M = 3.44$) was higher ($\Delta M = 0.53$) than the script version ($M = 2.91$). This difference was found to be statistically significant ($p = 0.016$) and have a small effect size ($d = 0.48$) in the composite feeling of transportation experienced (see Table 31). This pattern was replicated in EO's mean composite feelings of transportation after reading the graphic novel version of *Dream* ($M = 3.55$) being reported at a higher ($\Delta M = 0.85$) level than the script version of the same play ($M = 2.70$). As

with their ELL counterparts, this difference in reported feelings of Transportation were statistically significant ($p = 0.0002$) and had a medium effect size ($d = 0.72$). Despite the fact that *Dream* had been reported as the more transportative play than *Tempest*, the graphic novel format nonetheless elicited greater transportation than the script format.

Table 31

*Average Change in Transportation Composite by Format in each Play*

| | | Change Graphic-Script | |
|---|---|---|---|
| Play | ΔM | *p* | *d* |
| | | ELL | |
| *Dream* | 0.53 | 0.016 | 0.48 |
| *Tempest* | 0.44 | 0.039 | 0.41 |
| | | English Only | |
| *Dream* | 0.85 | 0.0002 | 0.72 |
| *Tempest* | 0.81 | 0.0002 | 0.71 |

As *Dream* followed the example observed in the whole group analysis, so did the feelings of composite Transportation felt by students reading *Tempest*. The mean feelings of overall transportation expressed by ELL students who read *Tempest* in the graphic novel format ($M = 3.15$) was also higher ($\Delta M = 0.44$) than those reported by those ELLs who read this play in the script format ($M = 2.71$). As with previous play-format groupings in this scale, this difference was found to be statistically significant ($p = 0.039$) and have a small effect size ($d = 0.41$). The EO students who were given *Tempest* also reported graphic novel mean scores ($M = 3.25$) that were higher ($\Delta M = 0.81$) than the scores of their peers who read *Tempest* as a script ($M = 2.43$). As with all other language status-play-format groups, this difference was found to be statistically significant ($p = 0.0002$) and also have a medium effect size ($d = 0.71$).

The repetition of this pattern across language status groups as well as play suggests that the format may hold more sway over overall feelings of Transportation for 10th-grade-students than home language or the content of the narrative. Across all groups, the *Dream* graphic novel was found to be the most engaging, which is predictable as both the format and the narrative were found to be more transportative when examined individually. However what is most interesting about this analysis, is that despite *Tempest* being the less transportative play, when it was read in the graphic novel format, it was found to elicit more feelings of overall transportation than *Dream* read in the script. This suggests that the format the play is read in more heavily impacts feelings of Transportation than the genre of the play itself. Further, it appears that EO students felt the changes in format more strongly than their ELL counterparts, eliciting effect sizes in the medium range rather than the small range. Yet, this may be due to broader range observed in their scores across both plays and formats, which allowed for more fluctuation in their reports. Overall, this analysis shows that the importance of the format a text is presented in may supersede the genre of the text in generating feelings of Transportation in students.

## Mediation of Vocabulary Acquisition

The third research question examined if reading comprehension, intrinsic motivation, and transportation mediate the relationship between format and vocabulary learning and if so, if any

mediating effect were consistent across formats and learner language categories. Mediation analysis examines relationships between variables and tries to identify if there is an additional mechanism or process at play in the relationship between two primary variables—in this case, format and vocabulary learning. For this analysis, it would have examined if the variables of comprehension, intrinsic motivation and transportation impacted the observed change in vocabulary. However, prior analysis showed that there was no statistically significant relationship between format and vocabulary learning. Therefore, the mediation analysis would not be an appropriate analysis, because the assumption of an existing relationship that one is trying to better explain is not met.

Although previous analysis found the lack of a statistically significant a regression was conducted by Language learner status for each play to ensure that the models confirmed previous findings. The regression analysis of the relationship (see Table 28) between format and vocabulary learning showed that the pre-test scores were the only variable that was consistently associated with the change in vocabulary observed. The pre-test scores for both language groups in both plays were found to have a statistically significant impact on change in vocabulary learning (ELL *Tempest* $p < 0.05$; ELL *Dream* and EO students in both plays $p < 0.001$). When controlling for pre-test score, format was found to not impact vocabulary learning for ELLs students reading *Dream* (ß = -0.28) or *Tempest* (ß = 0.17) at a statistically significant level. This lack of a relationship was also observed for EO students reading *Dream* (ß = -0.24) and *Tempest* (ß = -0.06). In addition, ELL status appears to impact students' vocabulary learning negatively at a statistically significant level ($p < 0.01$) only when they read *Dream*, but does not show any effect when they read *Tempest*. This reflects the previous, inconsistent finding that EO students in both formats gained vocabulary when reading *Dream* at a statistically significant level ($p < 0.001$) but ELL students did not. Due to ELL status being a variable from the EO baseline, the result is commensurate with previously discussed findings.

Table 32
*Impact of Format on Vocabulary Learning*

| | Dream | | Tempest | |
|---|---|---|---|---|
| Variable | ELL | EO | ELL | EO |
| | ß | ß | ß | ß |
| Pre-test | 0.67*** | 0.65*** | 0.67* | 0.68*** |
| GN Format | -0.28 | -0.24 | 0.17 | -0.06 |
| ELL | -0.96** | | 0.00 | |
| $r^2$ | 0.47 | 0.36 | 0.36 | 0.37 |
| *F* | 65.48 | 84.25 | 42.82 | 68.15 |

Note. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$

In this model, the $r^2$ informs the amount or proportion of variance that the dependent variable (change in vocabulary) in the model can be explained or predicted by the independent variables (language status group and format) at this time. For the four language-play samples in this model, the r-squared is roughly the same for three of the four conditions (*Tempest* EO $r^2 = 0.37$; *Tempest* ELL $r^2 = 0.36$ and *Dream* EO $r^2 = 0.36$). The ELL students who read *Dream* had the most variance explained ($r^2 = 0.47$) and were the participants that were impacted by their

language status. It is likely that the additional variance can be attributed to their language status being meaningful.

In summary, the mediation analysis that had been planned to be conducted in this study was not possible due to the lack of a statistically significant relationship between format and vocabulary change from pre- to post-test. This pre-existing relationship is necessary for a mediator analysis to be conducted. An additional multiple regression was conducted to confirm if the format, pre-test scores or language status had a statistically significant relationship to the change in vocabulary scores. The only dependent variable that was found to have a consistent statistically significant relationship with change in vocabulary scores across language status groups and plays was the students' pre-test scores. In addition, the ELL students who read *Dream* were found to be negatively impacted due to their language status, however this relationship was not found in those same ELL students when they read *Tempest*. Therefore, it appears that the there is an additional, negative interaction effect between play (*Dream*) and language status when pretest and format are controlled for. This interaction effect suggests that there may be properties of particular plays, or perhaps sub-genres, that should be examined in future studies. For the current effort, however, it remains something of a mystery that the research and statistical designs could not shed light on.

## Summary

The recent boom in the popularity of graphic novels and comic books, particularly for school-age readers has created a modern wave of research on the use of the graphic novel format in learning. To this end, this study set out to determine if 10$^{th}$-grade-students were able to learn targeted academic vocabulary incidentally through reading two Shakespeare plays in the original English, one in the traditional script format and the other in the graphic novel format. This study yielded that students learned a statistically significant amount of vocabulary from reading both *The Tempest* and *A Midsummer Night's Dream*. The learning that occurred was significant in both the graphic novel format and the script format, with no statistical difference between the formats of note. Further, when the ELL and EO students were examined as different samples, the learning remained statistically significant, and neither format provided an additional, significant impact on learning. These findings leads one to conclude that allowing students to read in the graphic novel format does not negatively impact the incidental vocabulary learning potential from the act of reading.

In addition to not causing any detriments to vocabulary learning, comprehension of the narratives was measured as an additional academic variable in this study. The findings for comprehension resulted in a statistically significant advantage for students reading the graphic novel format of *The Tempest*. However, this was not consistently the case of *A Midsummer Nights' Dream*, in which whose who read the graphic novel format had a higher raw score, but the difference was not found to be statistically significant, nor have a compelling effect size. As with vocabulary, these findings were mirrored in both the ELL and EO participants. At this time it is unclear if there were play-specific confounding variables that caused students who read *Dream* in the script format second to have scores elevated to those of the graphic format. This second academic variable demonstrated that the graphic format could positively impact the learning of 10$^{th}$-grade-students when presented with narrative texts.

Further advantages for those reading the graphic format were found when examining the psychosocial variables measured in this study—Intrinsic Motivation for Reading and Transportation. Intrinsic Motivation for Reading was measured using three short assessments

given across three time periods; as part of the pre-test packets to establish baseline feelings of motivation, after the first reading and lastly at the conclusion of the second reading. This progression analysis was used to ensure the shifts between times were accurately captured in the interpretation of the findings. Within Intrinsic Motivation, there were three subscales that were used to capture the students' shifting feelings. The first was Interest and Enjoyment of Reading, which showed a clear divergence due to format in the observed trends. For whole group analysis as well as language status group analysis, all students who read the script first reported a statistically significant decline in their Interest and Enjoyment of Reading, which was followed by a significant rebound in their self-reports after reading the graphic novel format of either play. Those students who initially read the graphic novel reported a mild decline in their Interest and Enjoyment of Reading and a subsequent, additional, significant decline after reading the script version of either play. This pattern was mirrored in the second scale—Perceived Competence—for all three of the subgroups that were examined with clear benefits in self-reported Perceived Competence after reading the graphic format.

The third scale used to inform Intrinsic Motivation for Reading was the Pressure and Tension Felt While Reading subscale. Unlike the prior two scales in which increased reports were positive endorsements, this scale measures benefits to students when it declines in quantity reported. This scale also differed from the previous two scales in that the observed trends were not attributable to the format, but rather the play that was read. The whole sample, as well as the two language status groups displayed higher feelings of Pressure and Tension felt when they read *A Midsummer Nights' Dream* rather than *The Tempest*. This pattern held true throughout the progressions, and it appeared that when the students were presented with each play or format did not impact their self-reports as profoundly as the previous scales.

The last variable examined was the feelings of Transportation into the narrative that students felt. This was examined with two subscales and a composite scale. The first portion of the scale was collapsed to inform about format rather than play Transportation due to the same questions being asked regardless of play. This scale found that students felt statistically significantly more Transported into the play they read in the graphic novel format when compared to the script format. The second subscale was comprised of questions about play-specific characters, and was used to better understand if one play fostered higher feelings of Transportation. In this subscale, *A Midsummer Nights' Dream* was rated as producing higher feelings of character-specific Transportation for the whole group sample, and both the language status groups. Lastly, the composite scale took into consideration the non-play-specific items of the first scale and the character-specific items to produce an overall Transportation measure. This yielded that when considering the whole narrative, not just the characters of the play, all three groups of students felt more feelings of Transportation when reading *A Midsummer Night's Dream*. Due to the clear preference of the graphic format, it could be hypothesized that students reading the graphic novel version of *Dream* were most likely to report the highest levels of transportation.

At the onset of this study, there was an additional level of analysis planned for this work, a mediation analysis of the impact of comprehension, intrinsic motivation and transportation on the relationship between format and vocabulary learning. However, this mediation analysis assumes an existing, statistically significant relationship between format and vocabulary gains. Yet, this relationship was not present when the initial analysis was conducted. The association was further investigated through a regression analysis of each play-by-language-status-group to create the highest potential for finding a relationship. However, despite the additional regression

analysis, the model did not show a statistically significant relationship between format and vocabulary gains. This is commensurate with the initial findings in the vocabulary changes analysis, and was expected. Due to the lack of relationship, this final layer of analysis was not conducted, as the findings would not yield meaningful information. However, the interaction effects between the studied variables would produce interesting future analysis and studies that should continue in the scope of future research.

# Chapter 4: Implication, Limitations and Future Studies

The primary research focus of this study was the impact of format—graphic novel or script—on students' learning of academic vocabulary, text comprehension, intrinsic motivation for reading and transportation. Two Shakespeare plays (*The Tempest* or *A Midsummer Night's Dream*) served as the stimulus texts to gain insight into 10th-grade-students' incidental learning of vocabulary as well as their understanding of those plays, and the intrinsic motivation and transportation they experienced while reading them. Students read one play in the graphic novel format and the other in script format; order of format-play format was randomized within subjects and counter-balanced across members of a pair. In addition to the targeted academic and psychosocial data collection, students were also asked what language was spoken in their homes, to serve as the mechanism for deciding ELL status. The primary research question focused on the efficacy of the two formats to foster academic and psychosocial gains. The second research question examined the interaction of format and ELL status across the same variables.

## Implications

The outcome measures in this study can be discussed as two groups: academic (vocabulary growth and comprehension) and psychosocial (intrinsic motivation for reading and transportation). The majority of research on the inclusion of the graphic format in academic settings focuses on the motivational and engagement advantages that were observed in readers. However, this study aimed to address how the format could be used to promote academic gains as well. Towards this aim, it measured targeted academic vocabulary specific to *Dream* and *Tempest* as well as using reading comprehension tools specific to the play that the students had read. In addition, it also measured intrinsic motivation changes and students' feelings of transportation and how the format, play or language learner status could impact positive changes.

### Academic Measures

The measures used in this study to better understand academic gains were developed to be play-specific and to only ask students about material they were exposed to in the excerpts of each play rather than the entire work. The vocabulary measure was validated for use in this study using Item Response Theory and a demographically similar sample of students. Comprehension questions were pulled from existing curriculum for the plays available for teachers.

**Vocabulary.** All students incidentally learned targeted academic vocabulary from both plays. Contrary to expectations, the format in which the plays were read did not consistently impact the level of significance of their learning, even when their English language status was taken into account. Although there were some minimal raw score gains observed between language status groups, these tended to a function of the play read rather than format—and were statistically unreliable. In sum, both ELL and EO students were able to learn targeted academic vocabulary in both formats, leading to the conclusion that the graphic novel format, while it does not lead to greater growth than traditional script formats, does nurture incidental acquisition of academic vocabulary as well as text-only format, thus allaying suspicions that might emanate from traditional perspectives on the graphic novel (i.e. comic book) format.

**Comprehension.** A similar effect, or rather the absence of an effect, across formats was observed in the secondary academic variable, comprehension. However, there was greater variability in comprehension as a function of the particular play students read and some evidence

of play by format interaction. Overall, it appeared that the graphic novel format was consistently higher when observing the students' raw score. However, the difference in comprehension for each play due to formats was statistically significant only when students' comprehension of *Tempest* was measured. This finding was consistent across the larger sample of students as well as within both language status sub-groups, EO and ELL. Generally, it appeared that ELL students had more difficulties in understanding *Tempest* when compared to *Dream*, yet, these relative difficulties were observed across format and for EO as well as ELL students, and therefore appear to be due to a factor inherent to the play rather than either format. This is of particular interest due to the fact that the only statistically significant difference observed in this measure was in the play that appeared to pose the most challenges for students (i.e., *The Tempest*), particularly ELLs.

These two academic measures (academic vocabulary learning and reading comprehension) were the ones least impacted by progression or an ordering effect. Regardless of when the play was encountered and the format in which it was encountered, students achieved similar gains in both vocabulary growth and comprehension. This finding suggests that in a classroom setting, students may learn academic content from either format. This finding bolsters the recent trend—supported by publishing companies—of bringing graphic novels into the classroom. Further, it is possible that increased use of this format will spur the inclusion of more multimodal narratives into the classroom, as is encouraged by the Common Core State Standards. However, this does support the careful curating of narratives in the graphic novel format for inclusion into a classroom, rather than assuming it to be a panacea and flooding classrooms indiscriminately with works in this format.

Across the United States there is a growing ELL population in schools (de Cohen & Clewell, 2007; Passel, 2007). The additional analysis in this study that focused on language learner status showed that there was no significant difference between EO and ELL students' academic gains or trends. The observed, similar changes in vocabulary and comprehension in both groups shows that the format does not inequitably benefit one language group over another. This leads one to the conclusion that the format supports learning for those who are native as well as non-native English speakers. Although it had been hypothesized that the additional scaffolding provided by the multiple visual literacies present in a graphic novel format would create higher levels of learning in ELL students, this was not the case in this study. Possible reasons why will be discussed in the Limitations this study experienced.

**Psychosocial Measures**

Academic (vocabulary or comprehension) gains were found to be significant, yet they did not vary as a function of format or narrative, with the exception of comprehension for *Tempest*. The story for the psychosocial measures was quite different, yielding significant differences and substantial effect sizes for both format and play.

**Intrinsic Motivation.** Due to variability across format-play progressions, the three subscales for intrinsic motivation were analyzed across time (pre-test and a post-test after each play read) by each of the four progressions (Ts—Dg, Ds—Tg, Tg—Ds, Dg—Ts). Within Interest and Enjoyment, there was a consistent trend suggesting that students felt more interested in, and enjoyed the plays more when they were presented in the graphic novel format rather than the script. Yet the pattern varied in slope due across progressions, but was not found to vary due to language status. When the students (in any observed group) read the graphic novel format first, there was minimal initial decline in their self-reported scores, however, a sharper decline was then observed after reading the script format second. However, if students were initially

exposed to the script format, there was a significant initial decline, which was then strongly reversed; in some instances students reported even more interest and enjoyment in reading than they did prior to experiencing either format.

Similarly, for the most part, students reported feeling more Perceived Competence in reading after the graphic novel exposure. If students were given the graphic novel format first, there was not to a statistically significant decline in their self-reported feelings of competence. Yet, those same students reported a significant drop after reading a play in the script format second. Conversely, when students were given a script format first, the observed decline in Perceived Competence was large and significant, followed by a smaller resurgence in feelings of competence after reading the graphic novel format. When examined by language status, the same trend was observed for both ELL and EO students. These two subscales within intrinsic motivation for reading showed a clear trend in the changes that were experienced by students due to the format the play they were reading was presented in that aligned with benefits from reading in the graphic novel format.

However, the third intrinsic motivation for reading scale, Pressure Tension felt while Reading, showed a trend that was better explained by the play the students read rather than the format. Unlike the first two intrinsic motivation scales, the Pressure/Tension scale is reporting on negative rather than positive feelings of motivation. Therefore, as the scores decline in this scale, there are fewer negative feelings experienced while reading. The means for all student groups declined from pre-test to the first reading regardless of the format in which they read their first play. However, within this initial decline in feelings of Pressure and Tension, those students who initially read *Tempest* experienced a sharper decline that was both statistically significant and had a medium effect size. In comparison those who read *Dream* first experienced a milder decline, with only the script format being statistically significant, but both formats still having a small effect size. Upon being exposed to the second reading, those who read *Tempest* second continued to decline in their feelings of Pressure and Tension, while those that read *Dream* saw an increase in raw scores, speaking to an increase in feelings of Pressure and Tension. Although the effects of reading the second play were not as statistically impactful, the opposing directionality of the trajectories due to play is of interest. This trend driven by the play rather than the format was observed in both ELL and EO participant subgroups.

There was one exception to the trend (ELL students in the Ds—Tg progression), in which the students saw minor gains after reading *Dream* second. At this time it is unclear if this is due to the ELL's observed difficulty with *Tempest* in comprehension, which could impact their levels of Pressure/Tension experienced. It is also of note that of all the gains made in within this scale (whole group, ELL and EO lenses) this particular gain was the smallest in raw score as well as effect size.

Overall, students experienced higher levels of Interest and Enjoyment of Reading as well as Perceived Competence when they were exposed to the graphic novel format rather than the script format. Although the progressions were an important lens through which to observe the changes in intrinsic motivation, it appears that the trend was the same regardless of ordering. However, it seems that progression order did have an impact on the slope of change for these two scales. The Pressure and Tension scale did not seem to follow a pattern established by format, but rather it was pegged more closely to the changes in the play that was read. This is shift in pattern further suggests that there are additional characteristics inherent to the plays that must be examined in future studies to better understand the impact and interaction of the play with the format.

**Transportation.** Lastly, students' feelings of transportation into the narrative were examined to help inform their level of engagement with the text. Separate analyses were conducted for each of the two subscales and a composite scale of feelings of Transportation. The first of the sub-scales was comprised of 11 questions that were not play specific, and therefore could be compared across all plays and formats. Students, in general and for each language status group reported higher, general levels of transportation when they read in the graphic novel format in comparison to the script format. Unlike previous measures, this scale showed slight differentiation between language status groups. Within the observed increased feelings of transportation in the graphic novel format, the levels of transportation were somewhat stronger in for EO students (large effect size) when compared to their ELL counterparts (medium effect size).

The remaining six questions for the transportation measure asked participants about their feelings of transportation specific to each of the play's characters. This analysis showed that students felt more transported into *Dream* than they did into the *Tempest* narrative. This increased feeling of being 'carried away' into the *Dream* narrative when compared to *Tempest* was observed in both ELL and EO subgroups as well. However, the increased feelings of transportation into *Dream* was not found to be statistically significant, nor have a meaningful effect size for the EO group as it was for the ELL and whole group sample. Further, when these feelings of transportation for format and play were combined into a composite score, consistently, it was found that *Dream* graphic novel readers experienced the most transportation. Yet it was *Tempest* in the graphic novel format that provided the next highest level of Transportation when observing the whole group and across language statuses. This implies that despite the narrative of *Dream* supporting the most feelings of being 'carried away', the format of the graphic novel provides enough transportative qualities that it can make students report higher feelings of transportation after reading *Tempest* (a less transportative narrative) in the graphic format. This suggests that the format can influence transportation to such a high level that it can override genre preferences.

Students felt higher levels of Transportation into the narratives when they were presented in the graphic novel format. Further, between the two plays there was a difference found in the self-reported feelings of transportation into the narratives, showing a clear preference for *Dream*. This is an interesting finding as students across groups experienced greater feelings of Pressure and Tension while reading *Dream*. This would suggest that despite feeling more Pressure and Tension while reading the narrative, students were still able to feel that the narrative carried them away more, which is not a phenomenon that has been found in the intrinsic motivation nor transportation literature.

**Mediation analysis.** This study had set out to also run additional analysis for mediation of the predicted relationship between format and vocabulary change. A mediation analysis investigate possible additional variables, such as comprehension or motivation, might mediate vocabulary acquisition, explaining vocabulary growth, either across or within formats or plays. The problem is that because format did not explain variance in vocabulary acquisition, the assumptions of a mediation analysis (Baron & Kenny, 1986). The lack of a relationship was confirmed with a multiple regression analysis that included pre-test score, format and ELL status as independent variable in the model to explain vocabulary growth. This yielded commensurate findings with the rest of this study, in that there was no statistically viable relationship between format and vocabulary learning. To try to better explain the significance of a relationship that is found to not be significant would not yield a meaningful analysis. Therefore, this additional

layer of analysis could not be conducted in a valid manner.

**The Impact of Format**

*Do no harm* is the hallmark of every profession, including teaching and educational scholarship. Thus, the most important consideration in evaluating a new intervention of any sort is whether it is no less effective than the conventional wisdom. If, in this study, traditional text encoded in scripts for classic plays is the conventional wisdom and graphic novels are the challenging intervention, then the consistent conclusion is that the graphic novel format does no harm; in the vast majority of comparisons between script and graphic novel, there were no differences in either vocabulary acquisition or comprehension. Students, both ELL and EO, gained equally from both formats. Despite many decades, perhaps centuries, in which the prevailing assumption was that comics had no role in schools, we now have at least some evidence that the graphic novel format has a legitimate place in academic settings.

After it is ensured that no harm is done to the students' learning, the second most important consideration is whether the challenger promotes any positive effects. In this study, it was shown that the graphic format is consistently associated with significant psychosocial gains in both intrinsic motivation and transportation. These statistically significant gains, with robust effect sizes, were observed specifically in the Interest and Enjoyment, as well as the Perceived Competence motivational scales and the general transportation scale. It is clear that the graphic novel format consistently explains gains, even on a single exposure, on this class of psycho-social outcomes.

The most immediate implication from this study is that the use of the graphic novel format in an academic setting can promote vocabulary learning through reading. The format can no longer be brushed aside as unable to carry academic depth or benefit. This study adds to this literature by showing virtually equal growth in targeted academic language and comprehension when 10$^{th}$-grade-students read Shakespeare in graphic novel and script conditions. Further, the study demonstrates positive gains intrinsic motivation and transportation gains by reading in the graphic novel format may create an increase in future academic growth.

**Policy and publication**. At this time there seems to be no foreseeable decrease in the trend in sales and consumption of the graphic novel format across ages (Crawford, 2004; Cromer & Clark, 2007). This format engages readers across modes of literacy and allows, at least in theory, for more complex literacy skills to develop. Therefore, as the trend in multiple literacies (Common Core Standards Initiative, 2010) continues to be bolstered by the Common Core State Standards, it is possible that the GN format will receive increasing attention in educational policy. As the format continues to become more popular, publishers will continue to expand their graphic novel portfolios for both leisure and academic reading. The findings of this study would encourage such efforts, resulting ultimately in the positioning of graphic novels as a part of core, rather than the supplementary, curriculum.

## Limitations

This study went through an extensive piloting as well as independent validation of the measures before implementing the main study. The interventions and the assessment materials were revised, and additional measures were added to create a robust battery to pursue this line of inquiry. Even so, some issues that emerged in the post-analysis revealed several limitations in the study's design and implementation.

**ELL Sampling Difficulties**

One of the most unexpected findings was that there was no statistically significant interaction

between format and language status in any of the four primary outcome variables. This was unexpected, because the use of the graphic novel was considered to provide more scaffolding for the meaning of words (vocabulary) and visualization of what was occurring in the play—two factors commonly included in principles of culturally relevant pedagogy. However, in the current study the ELL students did not respond to the graphic novel significantly differently than their primarily English-speaking peers.

For this study, the students' ELL status was determined from a single question, albeit one that enjoys wide use in the United States (and California: What language do you speak at home?). This is the same question used by California school districts to determine if students need to take the CELDT (CTB/McGraw-Hill, 2000) as well as the question used on the American FactFinder survey (U.S. Census Bureau, 2012-2016 American Community Survey 5-year estimates, 2017) and on the U. S. Census (US Census Bureau, 2013) to determine native language. However, it is possible that the students who responded that they spoke a language other than English at home had already been reclassified, and were no longer, by 10$^{th}$ grade, learners of the English language but rather fluently bilingual. If this is the case, then the students would be expected to perform on par with their primarily English-speaking peers, and one would therefore expect minimal (if any) differentiation between the ELL group and the primarily English-speaking group—as was observed. The binary nature of the variable for this study did not allow for a finer grained analysis of those students who may have at one point been ELL classified, but no longer are considered ELLs in their schools or for the state of California.

**Progressions**

The *a priori* analysis that was conducted for this study suggested that each group examined needed to have an $n = 102$ to have a reasonable chance of detecting statistically significant findings that were in fact valid. When the study was designed, the sample size that was targeted was $n = 250$ to allow for two groups (ELLs and predominantly English-speakers; or two formats of a play) and to provide a cushion for students who may decide to drop out of the study voluntarily or due to absences. However, when the analysis began it became apparent that the progression (i.e., the order in which students read the play-format combinations) of the readings played a strong role in explaining variance for some outcome variables. Therefore, this sample actually had four subgroups that required consideration rather than two. If effect, given the fact that at times, progression proved to be a significant predictor of performance, the study was vastly underpowered. Had this unlikely, and by the way, inexplicable, variable been anticipated, increasing the participant number to 450 might have provided adequate power. Ironically, this might have been possible had not a second school site for this research project backed out after committing to host the research. It would be of interest to increase the population and re-run the analysis to see if there were any additional statistical findings that may be found.

**Time Limitations**

The selection from both works was piloted with a comparable population to ensure that a typical 45-minute class period was sufficient to read the excerpt as well as take the post-test. In the main study, however, some students did not have sufficient time to carefully read the passage and thoughtfully respond to the post-test packet. It is unclear if this was due to providing too short of a timeframe for them to engage in the tasks in a meaningful manner, or if they were not engaging with the material by choice. Although this did not appear to be an issue for a great number of students, it is important to note that not all students completed all the post-test both times due to the period ending and their needing to move on to their next class. In future studies,

it may be important to either reduce the reading or the post-test length or provide longer periods of time for the study to be conducted within.

## Future Studies

Upon completing the analysis in this dissertation, several follow-up studies quickly become apparent and these research questions will be investigated in future studies. These future studies can be organized into four main groups: extending analysis; measures not yet analyzed; text complexity; and additional participants and site. In reviewing the data collected and the current body of literature these additional studies may only consist of an initial use of the data collected.

### Extending Analyses

In conducting the analysis that were outlined in the methods section of this study, two areas present themselves as strong possibilities for further analysis, beyond the scope of this study. The first of these is additional moderation analysis and the second is enriching the target academic vocabulary data set.

**Moderator analysis.** This study attempted to conduct a mediation analysis to better explain the relationship between format and vocabulary changes/gains. This was not possible due to a lack of a statistically significant relationship discovered between this independent and outcome variable. However, it does lead one to become curious about further analysis with the variables examined in this study in a model for moderator analysis. Unlike mediation analysis, moderators do not require an existing, statistically significant relationship to be established prior to analysis. A moderating variable is a variable that when combined with an independent variable(s) creates the appropriate conditions for the independent variable(s) operation. This type of analysis examines the how a variable affects the relationship between the independent variable(s) and the dependent/outcome variable (Baron & Kenny, 1986). This could be achieved by running an ANOVA to better understand the relationships of different models.

It would be of interest to investigate if format, in combination with comprehension, intrinsic motivation or transportation explain more of the variance that was observed with the pre-test, format and ELL status model discussed in this study. An additional variable that should not be overlooked in this subsequent analysis is that of the different narratives. As was observed in several of the examined variables (e.g. comprehension, Pressure/Tension and Transportation) the play that the students were exposed to appeared to have inherent qualities that created possible interaction effects. Through studying several different moderator models it may be possible to better understand the impact the narrative had on students in addition to the academic and psychosocial variables that were set out to be studied.

**Target academic vocabulary.** The design of the targeted academic vocabulary measures used in this study was conducted with future analysis in mind. The measures were designed to not only measure vocabulary acquisition, but also the learning of extra exposures in multiple formats, word forms in each format and error types committed by the participants. In conducting additional analysis of these measures, a richer discussion of vocabulary learning may be possible.

This dissertation only examined the growth of 40 targeted academic vocabulary words. However, data were collected on 60 words. The additional 20 words that were not part of this analysis were excluded due to the fact that they were chosen they appeared in both plays, and therefore participants would be exposed to them in both formats. These words were made up of 10 Shakespearian English (e.g. thou, thy) and 10 academic overlap words that met inclusion

criteria, but were not unique to a specific play. These words can be analyzed and examined to represent the possible growth students may have had if they there been twice the instances of exposure and exposure in both formats. Further, this analysis would help to determine if there may be any additional benefit to vocabulary learning if both formats of a text are used in a classroom. Therefore, comparing these findings with those of the play specific results may yield interesting, additional findings. This analysis does come at a cost, however, because notice that they appeared in both graphic novel and script format, making it impossible to examine format effects. Even so, it will be useful to learn whether doubling the exposure enhances incidental vocabulary acquisition.

In order for all 60 word of the targeted vocabulary to be included, the word had to be used in the same manner (same part of speech/form class) every time it occurred to meet inclusion criteria. Therefore, all of the 60 selected targeted academic vocabulary words may also be reorganized by the word form (part of speech) rather than play they were in. Additional analysis of the type of word form most commonly learned may inform the potential for targeted instruction. For example, it may be postulated that a noun may be easier to learn in the graphic format if it is specifically depicted in the frames in which the word appears. Therefore, through this type of analysis one may find how to best leverage the impact with one format over another.

Lastly, the measures were designed using a "theory of distractors" so that the specific errors made by participants in the multiple-choice vocabulary measures are also informative. Every question presented 4 possible responses to a definition provided as the question stem. One of these options is the correct target vocabulary word for that definition. The remaining three answers are informative foils of different types. Attention was given to the foil choices and ensuring that they were the same word form as the correct answer to ensure that participants could not determine the correct answer through grammatical analysis of possible answers. The first type of foil is the target/correct answer for another question stem (definition). The second foil was a word that made semantic sense, but was still incorrect, yet was not part of either play (e.g. when the given definition is "an officer on a ship", the target is boatswain, foil is dockhand). The final foil was an academic word in the play, that was highlighted as an academic word by the Coxhead Academic word list or teacher resources but did not meet inclusion criteria due to only appearing once in the play. Each of these foils informs different types of errors that may be interesting to investigate.

Due to the complexity of the measure design, it is possible for this measure, although already examined in this dissertation, to yield significantly more information about how high school students acquire vocabulary incidentally. These additional analyses would also enrich the discussions begun in the dissertation regarding learning in these different formats and the possible extended impact of intrinsic motivation for reading on language and vocabulary acquisition.

**Measures Not Analyzed**

Time and complexity dictated the exclusion of certain less central control and outcome measures from the analysis. Tools which were not analyzed include: The Author Recognition Test, Reading Comprehension measures, Tier 1 vocabulary test, additional motivational scales, exit-efficacy measures and additional Demographic variables not considered in this dissertation.

**Author Recognition Test.** The ART informs the quantity of reading a student engages in. Therefore, it is possible that using the data collected by this assessment may serve as a possible mediator / moderator variable. This additional analysis would provide further information regarding differences in vocabulary growth.

**Tier 1 vocabulary.** The vocabulary could also be re-examined in conjunction with the previously discussed Tier 1 measure. Analysis into which Tier 1 equivalents were known prior to exposure to texts, compared with growth after reading may reveal if knowing a Tier 1 equivalent for a word proved helpful in learning a new label or word for a known concept. Further it would be informative to see if this growth, tied to existing Tier 1 understanding, varied across formats or English Language status.

**Motivation.** Data were collected on two additional motivational measures were not included as part of this analysis, the AMRT and parts of the IMI—additional scales due to the several restrictions, but primarily due to time restrictions during data collection and/or the fact that they did not have a post-test available to administer. Therefore, both of these measures are only given prior to reading, and as part of the pre-test packet.

At this time, it is suggested that additional analysis may be conducted on the existing data set, using vocabulary growth as well as motivational findings, and regressing them on pre-existing levels of motivation across these additional scales. Due to the large impact on motivation the formats had in this study, this is an area of much needed continuing analysis. This analysis is of specific important due to the existing literature on the positive impact motivation may have on learning, student well-being, and other academic and psychosocial outcomes. This dissertation finds that academic gains (as measured by vocabulary growth) are statistically significant and equal across formats, therefore, if motivation is positively impacted in one format compared to the other, then one may begin to build a stronger case for the inclusion of the graphic novel format in classrooms and other academic settings.

***Adolescent Motivation for Reading Test.*** The AMRT scale additionally informs by providing two additional subscales of existing motivation for reading. This scale would be important to include in future analysis due to the fact that it was designed specifically for adolescents rather than the broader intrinsic motivation scales that have been used in this dissertation. These two subscales are self-concept as a reader and value of reading. It would be important to examine if preexisting levels on either of these measures of adolescent motivation to read the reading further explain growth of vocabulary, impact comprehension or the participants' change in intrinsic motivation (interest and enjoyment of reading, perceived competence as a reader, or pressure and tension felt while reading).

***Intrinsic Motivation Inventory—additional scales.*** This scale is of specific importance to include in future analysis and continue to explore due to the fact that the three intrinsic motivation scales that measured large changes due to format in this dissertation are part of this measure. The three subscales that were included in this dissertation (Interest and Enjoyment of Reading; Perceived Competence as a Reader; and Pressure and Tension felt while Reading) were the scales that showed the largest effect sizes in the statistically significant changes that occurred between formats. Further analysis of these subscales would inform if these measures were more sensitive or if the growth observed was due to another facets of pre-existing intrinsic motivation for reading measured in the four additional scales.

Similarly, the remaining four scales on the Intrinsic Motivation Inventory inform different pre-existing aspects of motivation that may impact growth of learning and comprehension. These additional intrinsic motivation subscales are: Effort and Importance of Reading, Perceived Choice for Reading, Value or Usefulness of Reading and Relatedness to Reading. These four additional subscales would provide additional information as to the pre-existing motivational profiles that experienced increased learning in one format or another. It is suggested that regressions be run to see if these pre-existing, characteristics of intrinsic

motivation may be explanatory variables for the changes in intrinsic motivation observed in this study.

**Demographics.** For this study, demographic variables used in analysis, we limited to ELL status as gathered through a single question (home language). Although participants' age, ethnic break down and gender are reported in this dissertation, most of the data collected were not examined as potentially relevant to vocabulary growth. Despite the lack of evidence showing a statistically significant difference in the vocabulary growth between ELLs and primarily English speaking students, there may be untapped explanatory variables in this data. At this time, the researcher's interpretation of the literature would suggest beginning analysis with gender, number of Shakespeare plays participants had been previously exposed to (specifically it the participant had been previously exposed to the two target plays) and SES.

***English Language Learners.*** Data were collected about the language the participants spoke with their friends as well as what language was spoken at home. It is possible that due to the age and number of years of primarily English schooling, most of these students would no longer meet state criteria for qualifying as an ELL (through the CELDT assessment) that still required English Language Development. Due to confidentiality issues, the school was unable to disclose which students were at the time considered ELLs and which had already been reclassified as English proficient. It is possible that the secondary language question of language spoken with friends could be used as a proxy for English-language development to the point of proficiency. Secondary analysis could be conducted on this variable to investigate if there is a difference in the rate of learning between students who did not speak English with their friends and those who did.

Additionally, many students reported speaking both English and another language both at home and with friends. This sub-group could be investigated to see if these participants learned differently than their peers who engaged with their peers or family in a monolingual manner (be it English or another language exclusively).

***Gender.*** The current growth in the popularity of the graphic novel format has caused many researchers, publishers and graphic novel authors revisit the existing stereotypes surrounding the format. The most profoundly held has been the assumption that this format is one that predominantly appeals to boys. This assumption can be found throughout the literature and popular culture. However, not only have these traditionally considered “boy books”, particularly the superhero genre, have become more inclusive of non-stereotyped female superheroes (e.g. *Ms. Marvel*; *Thor, Goddess of Thunder*; revival of *Wonder Woman*). These graphic novels and comic books have been met with great success in distribution and sales.

Further, the recent increase of female authors outside the superhero genre—the graphic memoir in particular—has caused an increase in the visibility and distribution of the format. Following in the tradition of Art Spiegelman (*Maus: A Survivor’s Tale*), the genre of graphic memoirs has boomed with works by Alison Bechdel (*Fun Home* and *Are you my Mother?*) and Marjane Strapi (*Persepolis*) over the last decade. Moreover, traditionally "girl books" such as *The Babysitters Club* series originally by Ann M. Martin, has also realized the influential (economically and in readership) the format. An adaptation into the graphic novel format by Raina Telgemeier (*Smile, Drama, Ghosts* and *Sisters*) has become one of Scholastic Press’s Graphix top selling books.

Due to this diversifying (intentionally or not) readership, it would be important to further explore the dataset of this dissertation to see if there is a difference between self-identified male or female students and their learning of academic vocabulary in both formats. It may be

theorized that the recent surge in popularity would have caused both male and female students to have previous exposure to the graphic format. This would suggest that no difference will be found between the genders in this dataset.

**Text Complexity in Graphic Novels**

In our current Common Care-era, there is a renewed focus on the text-complexity of materials students are exposed to in the classroom. Several quantitative and qualitative measures have been developed and recommended to teachers to gage the appropriateness of a text for the particular grade level. However, both graphic novels and scripts are noted as being difficult to measure quantitatively due to their non-traditional format when compared to novels.

Key elements of text complexity measures include (but are not limited to): number of syllables per word, and number of words per sentence. In both graphic novels and scripts, the speaker and the action occurring with the words are either denoted by an image or a stage direction. Due to the lack of narrative, descriptive text of these actions in these formats, they are more difficult to measure using quantitative measures that are typically done digitally. For example, when two characters are having a conversation, there are often sentences that are cut off due to interruption, statements that are thought rather than spoken to another character, or actions that are drawn or acted out.

These meanings, conveyed in actions and images are not always recorded in a manner that can be processed to emerge in our traditional quantitative measures. Further, the specific text elements that are being measured may be impacted due to the how spoken and written language are often utilizing different cadences, contexts and sentence structures. These stylistic differences between formats may make it even more difficult to measure due to the conversational style of both of these formats. In addition, there is the variable of the images in graphic novels that must also be addressed as part of the complexity of these texts. In the graphic novel context, different illustrator styles, tightness of the images depicting the text or the images adding a level of irony, complication or additional information to the text, the images that the text is juxtaposed with may need to be evaluated separately from the text. To date, there does not appear to be a method of dealing with any of these issues in quantitative text complexity measures.

Further, some have proposed, that by providing the visual scaffolding of images in graphic novels, the level of (pure) text complexity is affected. It has been proposed that the effect of multiple, simultaneous visual literacy may make a text less complex, but these perspectives have not yet been sufficiently researched at the time of this writing. This is an area of growth that is needed in the literature as the popularity and inclusion of the graphic novel format continues to grow.

One of the ways that this could occur in the context of this study would be to implement a survey to teachers to see which of the targeted academic words they believe to be more heavily scaffolded in each format. Each instance of the word being used was found in the script and the graphic novel of the plays. A survey would then be prepared in which teachers are given the line of script or the graphic novel panel in which the targeted academic vocabulary is used. The teachers would be prompted to consider "In your opinion, how much support does the graphic provide for inferring the meaning of the word_____?". They would be provided with a Likert scale to rank the level of contextual support they perceive to be provided for each targeted academic vocabulary word. The provided seven-point Likert scale ranges from "no level of support" to "high level of support".

These data from teacher judgments of support can inform two lines of inquiry. The first

revolves around relative judgments about how rich the context clues provided in both formats are for assisting word learning. The context clues can make an unknown word easier to understand (citation). It is hypothesized that the graphic novel version of the same text provides enriched, contextual, scaffolding to readers. Secondly, such data can inform whether some parts of speech (e.g. nouns, verbs, adjectives) are learned more frequently or easily than through incidental contact with relevant visual or verbal contexts.

This survey, in conjunction with the methodology of this dissertation could yield interesting and needed information for the first step in the development of text complexity measures appropriate to be use to rate the text complexity of graphic novels. This tool would potentially further encourage teachers to use the format in a classroom setting under the Criteria put forth by the Common Core State Standards.

**Additional Participants and Sites**

In addition to the data sample discussed in this study, additional data is in the process of being collected at a secondary site. This additional research site is located in the more urban Bay Area in California, rather than a rural town, and the neighborhood that attends the school is composed of a different ethnic, SES and linguistic make up.

The future addition of this population into future analysis, may enrich the sample and begin to show more granular differences in students' learning in a graphic novel format. At this time the sample consists of 75 students and was not included in this analysis due to the *a priori*, sample size considerations for the minimum size required for each sample group of 102 participants to achieve a statistically significant result. Therefore, as future studies are developed, additional participants may continue to be recruited to this secondary study site. Due to possible critiques that the novelty of using a format that is not traditionally used for academic work could confound the findings of this study, it is proposed that future studies be conducted in settings that have embraced the use of the format in the classroom. This would allow for a clearer examination of the graphic novel format rather than the possible novelty of the text. It is also possible that positive outcomes observed in a short-term study would be augmented with prolonged exposure to the format in an academic setting.

## Concluding Statement

This study provides a first attempt at creating a better understanding of the academic and psychosocial potential of the graphic novel format in academic settings. Throughout the analysis the graphic novel format was found to not have the detrimental effect that many over the decades had been assumed it would have on learning. Rather, the 10$^{th}$-grade-students who participated in the study learned academic vocabulary at a statistically significant rate for both plays and in both formats. These gains were also found when the participants' gains were by language status groups. Further, the students had higher raw scores in the graphic novel format for both plays, with *Tempest*'s scores being statistically significantly higher in the graphic novel format when compared to the script—which was not the case with *Dream*.

In addition to not causing detriment to academic learning (and in some cases increasing it), the graphic novel format also promoted positive outcomes for the whole sample, as well as ELLs and EOs, when students' intrinsic motivation for reading and transportation were examined. In the Interest and Enjoyment scale as well as Perceived Competence and general transportation, students showed benefits when reading the graphic novel format rather than the script format, regardless of the play they encountered. These findings were statistically significant and showed clear benefits in psychosocial measures for the graphic novel format.

The Pressure and Tension scale as well as the play-specific transportation measures broke from this trend and were more significantly influenced by which narrative was read. Interestingly, the plays were not consistent in which provided more positive outcomes across measures. Further analysis is needed in the interaction effects of the play before generalizable findings are possible.

It is with tempered enthusiasm that these findings are offered as a first step to promote the inclusion of the graphic novel format as one piece of the possible literature pie that should be a part of the academic curriculum. The current move towards Common Core State Standards promotes the inclusion of multimodal texts in curriculum, and the graphic novel format is a rich example of this rapidly expanding genre, inherently employing multiple-visual-literacies. Graphic novels have seen a virtual explosion in popularity over the last decade, and this has prompted the publication of a wealth of robust texts in this format. The format now offers a breadth and depth of high-quality, original and engaging publications that should be considered for inclusion as core texts to any grade's curriculum, and personal libraries.

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# Appendix A: Gates-MacGinitie Vocabulary except

## Vocabulary

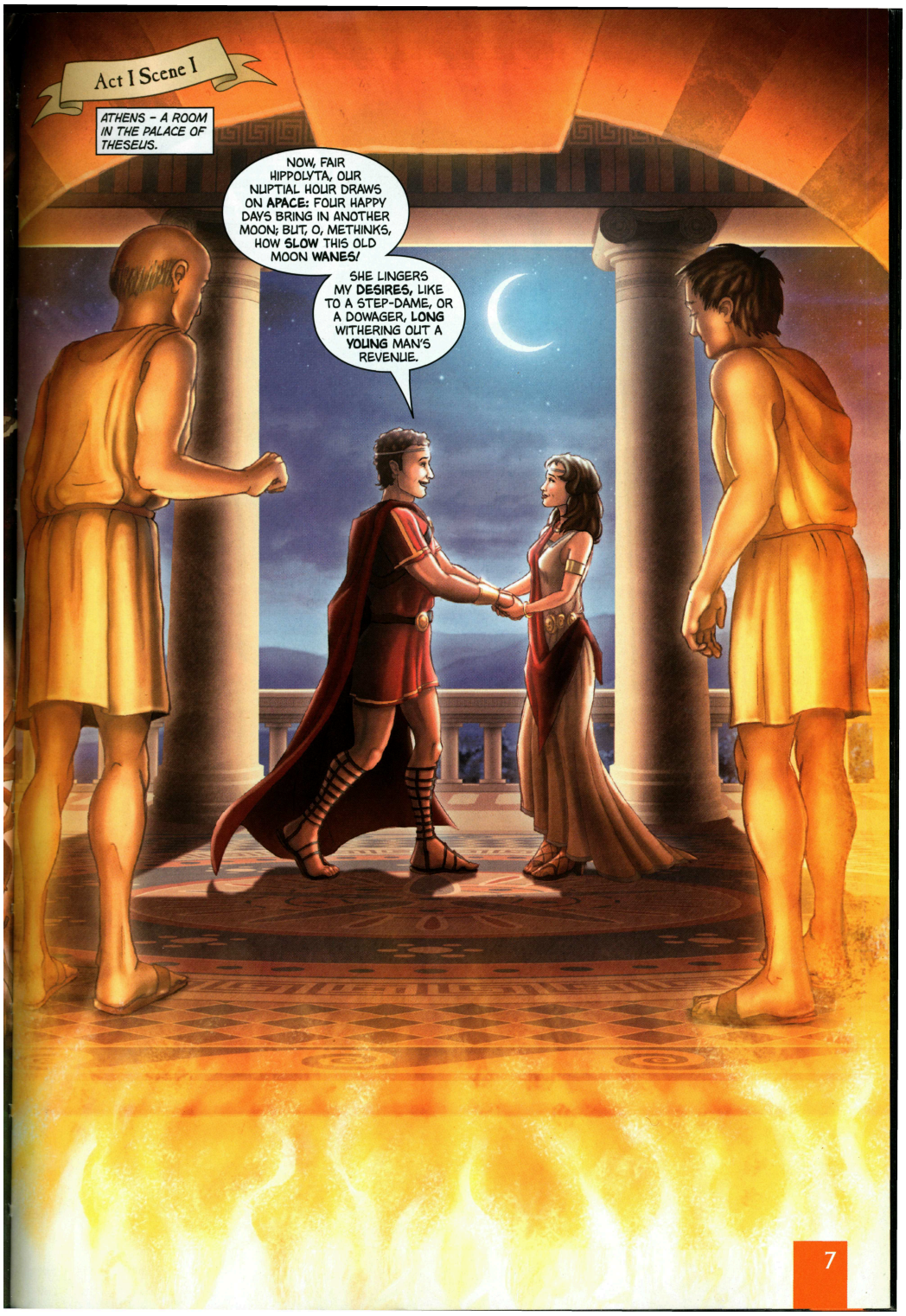
**V-1. a big garage**

- (K) place for cars
- (L) machine
- (M) sidewalk
- (N) covered porch
- (O) cloth sack

**V-2. They will close it.**

- (P) stay near
- (Q) begin
- (R) make
- (S) shut
- (T) go past

## Appendix B: *A Midsummer Night's Dream* graphic novel excerpt sample




FOUR DAYS WILL QUICKLY STEEP THEMSELVES IN NIGHTS; FOUR NIGHTS WILL QUICKLY DREAM AWAY THE TIME;
AND THEN THE MOON, LIKE TO A SILVER BOW NEW-BENT IN HEAVEN, SHALL BEHOLD THE NIGHT OF OUR SOLEMNITIES.
GO, PHILOSTRATE, STIR UP THE ATHENIAN YOUTH TO MERRIMENTS; AWAKE THE PERT AND NIMBLE SPIRIT OF MIRTH:
TURN MELANCHOLY FORTH TO FUNERALS; THE PALE COMPANION IS NOT FOR OUR POMP.
HIPPOLYTA, I WOO'D THEE WITH MY SWORD, AND WON THY LOVE, DOING THEE INJURIES; BUT I WILL WED THEE IN ANOTHER KEY, WITH POMP, WITH TRIUMPH, AND WITH REVELLING.
8

## Appendix C: *The Tempest* graphic novel excerpt sample


HENCE! WHAT CARES THESE ROARERS FOR THE NAME OF KING?
TO CABIN: SILENCE! TROUBLE US NOT.
GOOD, YET REMEMBER WHOM THOU HAST ABOARD.
NONE THAT I MORE LOVE THAN MYSELF.
YOU ARE A COUNSELLOR; IF YOU CAN COMMAND THESE ELEMENTS TO SILENCE, AND WORK THE PEACE OF THE PRESENT, WE WILL NOT HAND A ROPE MORE; USE YOUR AUTHORITY:
IF YOU CANNOT, GIVE THANKS YOU HAVE LIVED SO LONG, AND MAKE YOURSELF READY IN YOUR CABIN FOR THE MISCHANCE OF THE HOUR, IF IT SO HAP.
CHEERLY, GOOD HEARTS! OUT OF OUR WAY, I SAY.
I HAVE GREAT COMFORT FROM THIS FELLOW: METHINKS HE HATH NO DROWNING MARK UPON HIM; HIS COMPLEXION IS PERFECT GALLOWS.
STAND FAST, GOOD FATE, TO HIS HANGING: MAKE THE ROPE OF HIS DESTINY OUR CABLE, FOR OUR OWN DOTH LITTLE ADVANTAGE.
IF HE BE NOT BORN TO BE HANGED, OUR CASE IS MISERABLE.
DOWN WITH THE TOPMAST!
YARE! LOWER, LOWER!
BRING HER TO TRY WITH MAIN-COURSE.
AAAAAH!
A PLAGUE UPON THIS HOWLING! THEY ARE LOUDER THAN THE WEATHER, OR OUR OFFICE.
11

## Appendix D: *A Midsummer Night's Dream* script excerpt sample

**ACT I** SCENE **I.**
**Athens—A room in the palace of THESEUS.**

*Enter THESEUS, HIPPOLYTA, PHILOSTRATE, and Attendants*

**THESEUS**: Now, fair Hippolyta, our nuptial hour
Draws on apace; four happy days bring in
Another moon: but, O, methinks, how slow
This old moon wanes! She lingers my desires,
Like to a step-dame or a dowager
Long withering out a young man's revenue.

**HIPPOLYTA**: Four days will quickly steep themselves in nights;
Four nights will quickly dream away the time;
And then the moon, like to a silver bow
New-bent in heaven, shall behold the night
Of our solemnities.

**THESEUS:** Go, Philostrate,
Stir up the Athenian youth to merriments;
Awake the pert and nimble spirit of mirth;
Turn melancholy forth to funerals;
The pale companion is not for our pomp.
*Exit PHILOSTRATE*
Hippolyta, I woo'd thee with my sword,
And won thy love, doing thee injuries;
But I will wed thee in another key,
With pomp, with triumph and with revelling.

*Enter EGEUS, HERMIA, LYSANDER, and DEMETRIUS*

**EGEUS:** Happy be Theseus, our renowned duke!

**THESEUS:** Thanks, good Egeus: what's the news with thee?

**EGEUS:** Full of vexation come I, with complaint
Against my child, my daughter Hermia.
Stand forth, Demetrius. My noble lord,
This man hath my consent to marry her.
Stand forth, Lysander: and my gracious duke,
This man hath bewitch'd the bosom of my child;
Thou, thou, Lysander, thou hast given her rhymes,
And interchanged love-tokens with my child:
Thou hast by moonlight at her window sung,
With feigning voice verses of feigning love,

And stol'n the impression of her fantasy
With bracelets of thy hair, rings, gawds, conceits,
Knacks, trifles, nosegays, sweetmeats, messengers
Of strong prevailment in unharden'd youth:
With cunning hast thou filch'd my daughter's heart,
Turn'd her obedience, which is due to me,
To stubborn harshness: and, my gracious duke,
Be it so she; will not here before your grace
Consent to marry with Demetrius,
I beg the ancient privilege of Athens,
As she is mine, I may dispose of her:
Which shall be either to this gentleman
Or to her death, according to our law
Immediately provided in that case.

**THESEUS** What say you, Hermia? Be advised fair maid:
To you your father should be as a god;
One that compos'd your beauties, yea, and one
To whom you are but as a form in wax
By him imprinted and within his power
To leave the figure or disfigure it.
Demetrius is a worthy gentleman.

**HERMIA** So is Lysander

**THESEUS** In himself he is;
But in this kind, wanting your father's voice,
The other must be held the worthier.

**HERMIA** I would my father look'd but with my eyes.

**THESEUS** Rather your eyes must with his judgment look.

**HERMIA** I do entreat your grace to pardon me.
I know not by what power I am made bold,
Nor how it may concern my modesty,
In such a presence here to plead my thoughts;
But I beseech your grace, that I may know
The worst that may befall me in this case,
If I refuse to wed Demetrius.

**THESEUS** Either to die the death or to abjure
For ever the society of men.
Therefore, fair Hermia, question your desires;
Know of your youth, examine well your blood,
Whether, if you yield not to your father's choice,

You can endure the livery of a nun,
For aye to be in shady cloister mew'd,
To live a barren sister all your life,
Chanting faint hymns to the cold fruitless moon.
Thrice-blessed they that master so their blood,
To undergo such maiden pilgrimage;
But earthlier happy is the rose distill'd,
Than that which withering on the virgin thorn
Grows, lives and dies in single blessedness.

**HERMIA** So will I grow, so live, so die, my lord,
Ere I will yield my virgin patent up
Unto his lordship, whose unwished yoke
My soul consents not to give sovereignty.

## Appendix E: *The Tempest* script excerpt sample

**ACT I SCENE I. On a ship at sea: a tempestuous noise of thunder and lightning heard.**
*Enter a Master and a Boatswain*

**Master**: Boatswain!

**Boatswain**: Here, master: what cheer?

**Master**: Good, speak to the mariners: fall to't, yarely,
or we run ourselves aground: bestir, bestir.

*Exit*, *Enter Mariners*

**Boatswain**: Heigh, my hearts! Cheerly, cheerly, my hearts!
Yare, yare! Take in the topsail; tend to the
master's whistle. Blow, till thou burst thy wind,
if room enough!

*Enter ALONSO, SEBASTIAN, ANTONIO, FERDINAND, GONZALO, and others*
**Alonso**: Good boatswain, have care. Where's the master?
Play the men.

**Boatswain**: I pray now, keep below.

**Antonio**: Where is the master, boatswain?

**Boatswain**: Do you not hear him? You mar our labour. Keep your
Cabins! You do assist the storm.

**Gonzalo**: Nay, good, be patient.

**Boatswain**: When the sea is. Hence! What cares these roarers
for the name of king? To cabin: silence! Trouble us not.

**Gonzalo**: Good, yet remember whom thou hast aboard.

**Boatswain**: None that I more love than myself. You are a
counsellor; if you can command these elements to
silence, and work the peace of the present, we will
not hand a rope more; use your authority: if you
cannot, give thanks you have lived so long, and make
yourself ready in your cabin for the mischance of
the hour, if it so hap. Cheerly, good hearts! Out
of our way, I say.

*Exit Boatswain*

**Gonzalo**: I have great comfort from this fellow: methinks he hath no drowning mark upon him; his complexion is perfect gallows. Stand fast, good Fate, to his hanging: make the rope of his destiny our cable, for our own doth little advantage. If he be not born to be hanged, our case is miserable.

**Boatswain**: Down with the topmast!
Yare! Lower, lower!
Bring her to try with main-course.
A plague upon this howling!
They are louder than the weather, or our office.
Yet again! What do you here?
Shall we give o'er, and drown?
Have you a mind to sink?

**Sebastian**: A pox o'your throat, you bawling, blasphemous, incharitable dog!

**Boatswain**: Work you then.

**Antonio**: Hang, cur, hang. You whoreson, insolent noise-maker!
We are less afraid to be drowned than thou art.

**Gonzalo**: I'll warrant him for drowning, though the ship were no stronger than a nutshell and as leaky as an unstanched wench.

**Boatswain**: Lay her a-hold, a-hold! set her two courses: off to sea again; lay her off.

*Enter Mariners wet*

**Mariners**: All lost! To prayers, to prayers! All lost!

**Boatswain**: What, must our mouths be cold?

**Gonzalo**: The king and prince at prayers! Let's assist them,
For our case is as theirs.

**Sebastian**: I'm out of patience.

**Antonio**: We are merely cheated of our lives by drunkards:
This wide-chapp'd rascal--would thou mightst lie drowning
The washing of ten tides!

**Appendix F: Demographics page**
**Personal Characteristics**

1. Male ○ Female ○
2. How old are you? 14 ○ 15 ○ 16 ○
3. What is your current GPA? _____
4. What grade are you in currently? 9th ○ 10th ○ 11th ○ 12th ○
5. Please indicate your ethnic background:

| | | | |
|---|---|---|---|
| White/Caucasian American | ○ | Chinese American | ○ |
| Black/African American | ○ | Japanese American | ○ |
| Chicano/Mexican American | ○ | Korean American | ○ |
| Latino/Other Hispanic American | ○ | Pacific Islander | ○ |
| East Indian/Pakistani American | ○ | Filipino American | ○ |
| Middle Eastern/Arab American | ○ | Other Asian American | ○ |
| American Indian/Alaskan Native | ○ | Multi-Ethnic (Indicate below) | ○ |
| Other/International | ○ | _____ | |
| _____ | | _____ | |

6. What grade are you currently earning in your English class?

| No Pass | Pass | A+ | A | A- | B+ | B | B- |
|---|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| C+ | C | C- | D+ | D | D- | F | |
| ○ | ○ | ○ | ○ | ○ | ○ | ○ | |

7. How would you describe your family's socioeconomic status (choose one)?

| ○ | ○ | ○ | ○ | ○ | ○ | ○ |
|---|---|---|---|---|---|---|
| Poor | Working class | Lower middle class | Middle class | Upper middle Class | Lower upper class | Wealthy |

8. What language do you speak at home? _____

9. Please check all the William Shakespeare plays from the list below you have previously read:

- Romeo and Juliet
- A Midsummer Night's Dream
- Macbeth
- Merchant of Venice
- Julius Ceasar
- Othello
- The Tempest
- Taming of the Shrew
- Twelfth Night

10. What is the highest level of education your parent/s have?

- O High School diploma or less
- O Some college/vocational training
- O Graduate from 2-year college
- O Graduated from a 4-year college
- O Post-Graduate degree

11. What is the lowest level of education your parent/s have?

- O High School diploma or less
- O Some college/vocational training
- O Graduate from 2-year college
- O Graduated from a 4-year college
- O Post-Graduate degree

## Appendix G: Author Recognition Test

Author Recognition Test

Below you will see a list of names. Some of the people in the list are popular writers and some are not. You are to read the names and put a check mark next to the names of those individuals who you know to be writers. Do not guess, but only check those who you know to be writers. Remember, some of the names are people who are not popular writers, so guessing can easily be detected.

Adam A. McCarthy
Adele Mills
Alan Moore
Allen Hart
Ally Carter
Alma Higgins
Archie Davidson
Art Spiegelman
Beatrice Honeycutt
Becca Fitzpatrick
Bill Willingham
Bradley C. Moretz
Brandon Barnes
Brian Briggs
Brian K. Vaughan
Brooks Knight
Bryan Lee O'Malley
Cassandra Clare
Charles P. Hill
Christopher Robinson
Craig Thompson
Crystal Alexander
David Levithan
David Montag
Deborah Aguon
Deborah Lowery
Diana Wynne Jones
Dorla Pimentel
Douglas Adams
E. Lockhart
Eoin Colfer
Eric R. Ramos
Eric Stinson
Frank Herbert
Frank Miller
Garth Ennis
Garth Nix
Gayle Forman
Gene Luen Tang
George Orwell
Henry Hartsfield
Inger Santos
Irene A. Flood
Irene J. Carr
J.D. Salinger
J.K. Rowling
J.R.R. Tolkien
James Dashner
James K. Mendez
Jeph Loeb
James K. Mendez
Jeph Loeb
Jeremy Johnson
Jeremy Newman
Jerry Spinelli
Jessie C. McClinton
Jodi Picoult
John Green
John J. Johnson
John Kemp
Julie Kagawa
Kevin N. Lacy
Kiera Cass
Kristi Jones
L.M. Montgomery
Larry L. Stlaurent
Laure Halse Anderson
Laurel Snyder
Lauren Diaz
Laurie Halse Anderson
Lavada C. Steger
Lee K. Tolan
Libba Bray
Lois Lowry
Louis Sacher
Madeleine L'Engle
Maggie Stiefvater
Marguerite Morrow
Marian Lopez
Marie Lu
Marjane Satrapi
Mark Lipps
Mark Ramos
Mark Waid
Markus Zusak
Meg Cabot
Melva Oldham
Melvin Cardenas
Melvin Lee
Crawford Michael Feder
Michael Grant
Nancy A. Baker
Nancy Farmer
Natalie Babbitt
Natalie R. Armstrong
Nathan Burns
Neil Gaiman
Orson Scott Card
Patricia Ripley
Philip Pullman
Richelle Mead
Rick Riordan
Rick Yancey
Robert Blake
Robert Brown
Pittacus Lore
Rainbow Rowell
Ray Bradbury
Raymond Sisson
Richard Harless
Robin McKinley
Sang V. Leslie
Sarah Harrell
Scott McCloud
Scott Westerfeld
Shannon Hale
Shaun Tan
Sherman Alexie
Shirley R. Starks
Stella L. Jones
Stephen Kale
Stephenie Meyer
Steve K. Cherry
Steven Bailey
Steven M. Gardner
Susie Villarreal
Suzanne Collins
Suzette Mitchel
Tamora Pierce
Teresa Sanchez
Terri C. Way
Terry Pratchett
Theresa Carroll
Todd Jones
Tricia Schneider
Ursula K. Le Guin
Vera Brosgol
Veronica Roth
Victoria Roth
Wayne Humphrey
William Sam

## Appendix H: Adolescents' Motivation to Read (AMTR) scale

1. My friends think I am _____
O A very good reader
O A good reader
O An OK reader
O A poor reader

2. Reading a book is something I like to do
O Never
O Not very often
O Sometimes
O Often

3. I read_____
O Not as well as my friends
O About the same as my friends
O A little better than my friends
O A lot better than my friends

4. My best friends think reading is_____.
O Really fun
O Fun
O OK to do
O Not fun at all

5. When I come to a word I don't know, I can _____.
O Almost always figure it out
O Sometimes figure it out
O Almost never figure it out
O Never figure it out

6. I tell my friends about good books I read.
O I never do this
O I almost never do this
O I do this some of the time
O I do this a lot

7. When I am reading by myself, I understand_____.
O Almost everything I read
O Some of what I read
O Almost none of what I read
O None of what I read

8. People who read a lot are _____.
O Very interesting
O Interesting
O Not very interesting
O Boring

9. I am _____
O A poor reader
O An OK reader
O A good reader
O A very good reader

10. I think libraries are _____.
O A great place to spend time
O An interesting place to spend time
O An OK place to spend time
O A boring place to spend time

11. I worry about what other kids think about my reading_____
O Every day
O Almost every day
O Once in a while
O Never

12. Knowing how to read well is _____.
O Not very important
O Sort of important
O Important
O Very important

13. When my teacher asks me a question about what I have read, I _____.
O Can never think of an answer
O Have trouble thinking of an answer
O Sometimes think of an answer
O Always think of an answer

14. I think reading is_____.
O A boring way to spend time
O An OK way to spend time
O An interesting way to spend time
O A great way to spend time

15. Reading is_____.
O Very easy for me
O Kind of easy for me
O Kind of hard for me
O Very hard for me

16. When I grow up I will spend _____.
O None of my time reading
O Very little of my time reading
O Some of my time reading
O A lot of my time reading

17. When I am in a group talking about stories, I _____.
O Almost never talk about my ideas
O Sometimes talk about my ideas
O Almost always talk about my ideas
O Always talk about my ideas

18. I would like for my teacher to read books out loud to the class _____.
O Every day
O Almost every day
O Once in a while
O Never

19. When I read out loud I am a _____.
O Poor reader
O OK reader
O Good reader
O Very good reader

20. When someone gives me a book for a present, I feel _____.
O Very happy
O Sort of happy
O Sort of unhappy
O Unhappy

## Appendix I: Tier 1 Completion test

**Complete the underlined word. The examples have been done for you:**

Ex: The basketball team _celeb rated_ their big win at the pizza place.

Ex: The teacher woke up early _s o_ she could buy coffee before work.

1. She got an A on her test, _s_ she got to go to the party.
2. She won the match, _s_ she got to take the trophy home.
3. He placed the book _o_ the table.
4. When the older woman got on the bus, Max stood up to _gi_ her his seat.
5. _A_ you my mother?
6. _O_ boy, here comes the parade!
7. _D_ you love me?
8. We should finish our homework _bef_ the basketball game.
9. And with a flare, the actor was directed to _ex_ the stage.
10. Do you _ha_ the time?
11. _Y_ are a great friend.
12. _Yo_ brother taught me to play poker when we were kids.
13. The report can be postponed _t_ tomorrow.
14. I gave the best birthday present _t_ him.
15. The necklace lay on her _ch_.
16. He decided to _ag_ to the proposed trade.

17. I _wa_____ the new shirt he got for his birthday.

18. The students _ne_____more help on their homework.

19. The _gi_____always wore her hair in braids when she played basketball.

20. The young man's face was _wh_____with fright.

21. That soccer fan is known to _pa_____when his team wins.

22. They had to _lo_____carefully to find the treasure.

23. The child finished his chores, _s_____he got his allowance.

24. The fans showed great _loy_____to their soccer team.

25. The candidate's behavior was so _b_____, that he was disqualified.

26. The boy's _cr_____behavior got him kicked out of school.

27. The _ch_____often played with toy cars.

28. The police officer was there to _he_____the old woman across the street.

29. I _b_____you for forgiveness!

30. The young man is an excellent _sai_____, he grew up vacationing on a sailboat.

31. The ship _bro_____the settlers to the shores of North America.

32. The children _li_____around the corner from the school.

33. I would like to make _mo_____changes to the house.

34. The woman's navy _dr_____was very stylish.

35. Here comes the Queen! _Lo_____, there she is!

36. The king's _ch_____would inherit the kingdom.

37. The death of his grandmother left him in great emotional _pa_____.

38. At every Olympic Games, respect and _ho_____is shown to the games' origins.

39. The Viking King sailed on a great _bo_____.

40. His bad behavior was the _rea_____he was punished.

41. The toy boat didn't float any more, it had been _bro_____.

**Appendix J: *A Midsummer Night's Dream* Target Vocabulary test**

1. A person's chest where secret thoughts and feelings are kept
    a. Bosoms
    b. Respect
    c. Sphere
    d. Secret
2. To agree to do or allow something
    a. Consent
    b. Dote
    c. Commit
    d. Supply
3. To want or wish for something
    a. Desire
    b. Seek
    c. Grant
    d. Attain
4. To be lavish or excessive in one's attention, fondness, or affection
    a. Dote
    b. Awake
    c. Debate
    d. Reward
5. Used as a title of address or reference for a duke, a duchess, or an archbishop
    a. Grace
    b. League
    c. Trace
    d. King
6. To not have something; to not have enough of (something)
    a. Lack
    b. Pursue
    c. Perceive
    d. Acquire
7. A measure of distance
    a. League
    b. Modesty
    c. Labor
    d. Quart
8. A young girl or woman who is not married
    a. Maiden
    b. Troth
    c. Civil
    d. Matron
9. The quality of not being too proud or confident about yourself or your abilities
    a. Modesty
    b. Maiden
    c. Prerogative
    d. Innocent

10. Light in color; having a skin color that is closer to white that is usual or normal
    a. Pale
    b. Vile
    c. Intelligent
    d. Fragile
11. To follow and try to catch or capture someone
    a. Pursue
    b. Consent
    c. Conceive
    d. Corral
12. A feeling of admiring someone or something that is good, valuable, important, etc.
    a. Respect
    b. Grace
    c. Injury
    d. Patronage
13. To search for someone or something; to try to find (someone or something)
    a. Seek
    b. Desire
    c. Deny
    d. Pirating
14. For that reason; because of that
    a. Therefore
    b. Not
    c. Likely
    d. Significantly
15. Loyal or pledged faithfulness
    a. Troth
    b. Modesty
    c. Intelligent
    d. Brave
16. Evil or immoral; very bad or unpleasant
    a. Vile
    b. Wanton
    c. Invisible
    d. Derelict
17. Showing no thought or care for the rights, feelings, or safety of others; not limited or controlled; shameless
    a. Wanton
    b. Pale
    c. Derived
    d. Adventuring
18. The time of life when someone is young; not yet become adult
    a. Youth
    b. Bosoms
    c. Bond
    d. Reckless

19. A noisy and wild celebration or party
    a. Revel
    b. Troth
    c. Bond
    d. Music
20. To stop sleeping; to become aroused or active again; to become aware
    a. Awake
    b. Lack
    c. Undertake
    d. Retire

## Appendix K: *The Tempest* Target Vocabulary test

1. To go or stay with someone
    a. Attend
    b. Performed
    c. Rend
    d. Tailor
2. To beg for something
    a. Beseech
    b. Hark
    c. Vex
    d. Trade
3. An officer on a ship
    a. Boatswain
    b. Wrack
    c. Malice
    d. Dockhand
4. To make one's way steadily especially against resistance
    a. Bore
    b. Beseech
    c. Usurp
    d. Summit
5. To live in a particular place
    a. Dwell
    b. Attend
    c. Mar
    d. Pioneer
6. To a greater degree or extent
    a. Further
    b. Rather
    c. Allay
    d. Tepidly
7. A piece of clothing
    a. Garment
    b. Vessel
    c. Whelp
    d. Fashion
8. The soil that is on or under the surface of the earth
    a. Ground
    b. Boatswain
    c. Zenith
    d. Heavens
9. Pay attention to
    a. Hark
    b. Dwell
    c. Glut
    d. Obey

10. A person who has the right to become king or queen or to claim a title when a person holding it dies
    a. Heir
    b. Warrant
    c. Theme
    d. Guarantor
11. Impossible to see, not visible
    a. Invisible
    b. Tribute
    c. Potent
    d. Magician
12. A group of people or things that belong together
    a. Kind
    b. Torment
    c. Project
    d. Member
13. A spirit in the shape of a young woman
    a. Nymph
    b. Heir
    c. Urchin
    d. Witch
14. To do an action or activity that usually requires training or skill
    a. Perform'd
    b. Bore
    c. Dispos'd
    d. Sway
15. With better reason or more propriety
    a. Rather
    b. Further
    c. Constant
    d. Likely
16. Extreme physical or mental pain
    a. Torment
    b. Kind
    c. Precursor
    d. Ache
17. Something that you do to show respect
    a. Tribute
    b. Invisible
    c. Vassal
    d. Bribe
18. A ship or large boat
    a. Vessel
    b. Nymph
    c. Entrails
    d. Harbor

19. A reason for thinking, deciding, or doing something
    a. Warrant
    b. Garment
    c. Occupation
    d. Lawyer
20. A wrecked ship
    a. Wrack
    b. Ground
    c. Diligence
    d. Beached

## Appendix L: Arcane Target Vocabulary test

1. Are
    a. Art
    b. Doth
    c. Fain
    d. Hath
2. Woe
    a. Ay
    b. Hark
    c. Fie
    d. Mark
3. Does
    a. Doth
    b. Exeunt
    c. Wert
    d. Canst
4. Before
    a. Ere
    b. Till
    c. Hither
    d. Wherefore
5. Leave
    a. Exeunt
    b. Hath
    c. Enter
    d. Anon
6. Has
    a. Hath
    b. Art
    c. Whence
    d. Wot
7. You
    a. Thou
    b. Thy
    c. Thyself
    d. Thine
8. Your
    a. Thy
    b. Hath
    c. Ye
    d. Ours
9. Until
    a. Till
    b. Unto
    c. Doth
    d. For

10. To
    a. Unto
    b. Ere
    c. And
    d. Hie

**Appendix M: Overlap Target Vocabulary test**

1. Something that is believed to have magic powers
    a. Charm
    b. Part
    c. Gallows
    d. Gift
2. To give up
    a. Yield
    b. Mean
    c. Abide
    d. Abdicate
3. One of the pieces, sections, qualities, etc. that make or form something
    a. Part
    b. Spirit
    c. Sphere
    d. Judge
4. Pleasing to the eye or mind
    a. Fair
    b. Upon
    c. Fertile
    d. Homely
5. Onward or forward in time or place
    a. Forth
    b. Thus
    c. Gently
    d. Loyally
6. For this reason
    a. Hence
    b. Forth
    c. More
    d. Poignantly
7. A supernatural being
    a. Spirit
    b. Charm
    c. Brute
    d. Tree
8. Therefore
    a. Thus
    b. Hence
    c. Entirely
    d. Just
9. Used to say that someone or something is very close or has arrived
    a. Upon
    b. Fair
    c. Away
    d. Yonder

10. To have a purpose or intention
    a. Mean
    b. Yield
    c. Ensue
    d. Goal

## Appendix N: Intrinsic Motivation Inventory (IMI)

**For each of the following statements, please indicate how true it is for you, using the following scale:**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| not at all true | | | somewhat true | | | very true |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1. | Reading is fun to do. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. | I feel like I have to read. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. | I really doubt that a person who likes to read and I would ever be friends. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. | I feel close to a person who likes to read. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. | I try very hard to read. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. | While I read, I think about how much I enjoy it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. | I don't really have a choice about reading. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. | I read because I have no choice. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. | I felt like I could really trust a person who likes to read. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. | I think I read pretty well, compared to other students. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. | I believe reading could be beneficial to me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. | I don't try very hard to do well at reading. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. | I read because I want to. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. | I am pretty skilled at reading. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. | I think this is important to read because it can be enjoyable. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. | I would be willing to read because it has some value to me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

| | | |
|---|---|---|
| 17. | I read because I have to. | 1 2 3 4 5 6 7 |
| 18. | Reading is an activity that I can't do very well. | 1 2 3 4 5 6 7 |
| 19. | I feel pressure while reading. | 1 2 3 4 5 6 7 |
| 20. | I don't feel like I could really trust a person who likes to read. | 1 2 3 4 5 6 7 |
| 21. | I'd really prefer not to interact with a person who likes to read in the future. | 1 2 3 4 5 6 7 |
| 22. | I believe I have some choice about reading. | 1 2 3 4 5 6 7 |
| 23. | I am very relaxed in reading. | 1 2 3 4 5 6 7 |
| 24. | I think reading is quite enjoyable. | 1 2 3 4 5 6 7 |
| 25. | I am satisfied with my performance at reading. | 1 2 3 4 5 6 7 |
| 26. | After working at reading for awhile, I felt pretty competent. | 1 2 3 4 5 6 7 |
| 27. | I think that reading is useful for enjoyment. | 1 2 3 4 5 6 7 |
| 28. | I think reading could help me to have a good time. | 1 2 3 4 5 6 7 |
| 29. | I think that reading is a boring activity. | 1 2 3 4 5 6 7 |
| 30. | I feel like it is not my own choice to read. | 1 2 3 4 5 6 7 |
| 31. | I felt really distant to a person who likes to read. | 1 2 3 4 5 6 7 |
| 32. | It is likely that a person who likes to read and I could become friends if we interacted a lot. | 1 2 3 4 5 6 7 |
| 33. | I would describe reading as very interesting. | 1 2 3 4 5 6 7 |
| 34. | I think I am pretty good at reading. | 1 2 3 4 5 6 7 |
| 35. | Reading does not hold my attention at all. | 1 2 3 4 5 6 7 |

| | | |
|---|---|---|
| 36. | I believe reading could be of some value to me. | 1 2 3 4 5 6 7 |
| 37. | I felt very tense while reading. | 1 2 3 4 5 6 7 |
| 38. | It is important to me to do well at reading. | 1 2 3 4 5 6 7 |
| 39. | I enjoy reading very much | 1 2 3 4 5 6 7 |
| 40. | I do not feel nervous at all while reading. | 1 2 3 4 5 6 7 |
| 41. | I'd like a chance to interact with a person who likes to read more often. | 1 2 3 4 5 6 7 |
| 42. | I don't put much energy into reading. | 1 2 3 4 5 6 7 |
| 43. | I am anxious while reading. | 1 2 3 4 5 6 7 |
| 44. | I think reading is an important activity. | 1 2 3 4 5 6 7 |
| 45. | I put a lot of effort into reading. | 1 2 3 4 5 6 7 |

## Appendix O: Intrinsic Motivation Inventory Exit Questionnaire (Text Material Questionnaire)

### Exit Questionnaire

For each of the following statements, please indicate how true it is for you, using the following scale as a guide:

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| not at all true | | | somewhat true | | | very true |

1. While I was reading this material, I was thinking about how much I enjoyed it.

2. I did not feel at all nervous while reading.

3. This material did not hold my attention at all.

4. I think I understood this material pretty well.

5. I would describe this material as very interesting.

6. I think I understood this material very well, compared to other students.

7. I enjoyed reading this material very much.

8. I felt very tense while reading this material.

9. This material was fun to read.

## Appendix P: *A Midsummer Night's Dream* Comprehension Questions

Act I

**1. What are Theseus and Hippolyta discussing at the play's start?**

A. They are discussing a party for the King.
B. They are discussing their upcoming wedding.
C. They are discussing international politics.
D. They are discussing the relative merits of the gods.

**2. What will be Hermia's fate be if she refuses to marry Demetrius?**

A. She will become a life-long servant in her father's house.
B. She will be banished to the savage wilderness.
C. She will have to choose to die or live as a cloistered nun.
D. She will be blinded and driven off to live as a beggar abroad.

**3. What do Lysander and Hermia agree to do?**

A. They will meet on the next night and escape to be married.
B. They will poison Demetrius soon after the marriage, then they will marry.
C. They will stand together in love and defy her father.
D. They will go to the temple together, to ask the gods for their help.

**4. What does Hermia hope will occure by telling Demetrius of Lysander and Helena's flight?**

A. She wants to get Hermia in as much trouble as possible.
B. That Demetrius will develop romantic feelings for her while they pursue them.
C. A monetary reward from Egeus for stopping Hermia.
D. Hermia wants Lysander to marry her instead.

Act II

**1. On what mission does Oberon send Puck?**

A. Oberon sends Puck to find the parents of the young boy so they can rescue him.
B. Oberon sends Puck to destroy the wedding feast by causing a great storm.
C. Oberon sends Puck to find a flower, that will make Titania fall in love.
D. Oberon sends Puck to beg the queen to hear his requests.

**2. What is Helena's reaction to Lysander's words of love?**

A. She thinks he is teasing her cruelly.
B. She believes him and falls in love with him.
C. She thinks he has gone crazy.
D. She thinks she is asleep and having a nightmare.

## Appendix Q: *The Tempest* Comprehension Questions

**Act I**

1. **Why is the boatswain rude to his passengers?**

   A. He doesn't think they have paid enough.
   B. They are drunk and practicing dances for the wedding.
   C. He is drunk and is boisterous when he drinks.
   D. The passengers keep causing more problems, while in a storm.

2. **How did Prospero and Miranda come to live on the island?**

   A. Prospero's brother Antonio and the King of Naples, conspired and overthrew Prospero.
   B. Prospero felt it was time to retire and leave the work of governing to his son.
   C. Miranda was being courted by a man she didn't want to marry so they ran away.
   D. Prospero had contracted a mysterious degenerative disease and had to be isolated.

3. **Which of the following statements does <u>NOT</u> describe Caliban?**

   A. He is the son of the bad witch Sycorax.
   B. He is physically deformed and bestial-looking.
   C. He is highly intelligent, but doesn't show it.
   D. He is Prospero's slave on the island.

4. **True or False: When Ferdinand and Miranda meet, they develop and feel instant dislike for each other**.
   A. True
   B. False

**Act II**

1. **What do Anthony and Sebastian do while the others sleep?**

   A. They steal Prospero's fortune.
   B. They attack Miranda.
   C. They conspire with Caliban.
   D. They plot to kill Alonso.

2. **Were Sebastian and Anthony successful?**

   A. Yes, they were.
   B. No, they were not.

## Appendix R: *A Midsummer Night's Dream* Transportation

Circle the number under each question that best represents your opinion about the narrative you just read.

1. **While I was reading the narrative, I could easily picture the events in it taking place.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

2. **While I was reading the narrative, activity going on in the room around me was on my mind.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

3. **I could picture myself in the scene of the events described in the narrative.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

4. **I was mentally involved in the narrative while reading it.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

5. **After the narrative ended, I found it easy to put it out of my mind.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

6. **I wanted to learn how the narrative ended.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

7. **The narrative affected me emotionally.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

8. **I found myself thinking of the ways could have turned out differently.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**9. I found my mind wandering while reading the narrative.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**10. The events in the narrative are relevant to my everyday life.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**11. The events in the narrative have changed my life.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**12. While reading the narrative I had a vivid image of Demetrius.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**13. While reading the narrative I had a vivid image of Hermia**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**14. While reading the narrative I had a vivid image of Lysander.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**15. While reading the narrative I had a vivid image of Helena.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**16. While reading the narrative I had a vivid image of Oberon.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**17. While reading the narrative I had a vivid image of Puck.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

## Appendix S: *The Tempest* Transportation

Circle the number under each question that best represents your opinion about the narrative you just read.

1. **While I was reading the narrative, I could easily picture the events in it taking place.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

2. **While I was reading the narrative, activity going on in the room around me was on my mind.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

3. **I could picture myself in the scene of the events described in the narrative.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

4. **I was mentally involved in the narrative while reading it.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

5. **After the narrative ended, I found it easy to put it out of my mind.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

6. **I wanted to learn how the narrative ended.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

7. **The narrative affected me emotionally.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

8. **I found myself thinking of the ways could have turned out differently.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**9. I found my mind wandering while reading the narrative.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**10. The events in the narrative are relevant to my everyday life.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**11. The events in the narrative have changed my life.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**12. While reading the narrative I had a vivid image of Miranda.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**13. While reading the narrative I had a vivid image of Prospero**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**14. While reading the narrative I had a vivid image of the Prince Ferdinand.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**15. While reading the narrative I had a vivid image of Caliban.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**16. While reading the narrative I had a vivid image of King Alfonso.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |

**17. While reading the narrative I had a vivid image of Gonzalo.**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Not at all | | | | | | Very much |