KAULFUSS, ALEX RUSSELL. Visualizing Literacy: Determining the Impact of Graphic Novels in the English Classroom on Reading Comprehension. (Under the direction of Ruie Pritchard.)

Sometimes considered a means of wasting time and fueling youthful fantasies, graphic novels do not typically come to mind when discussing strategies for literacy success; however, graphic novels have myriad benefits to offer the English / Language Arts (ELA) classroom. As Fletcher-Spear, Jenson-Benjamin, and Copeland (2005) note, the graphic novel is not a genre unto itself, but rather a format. Graphic novelists strive to capture traditional conventions of literature using both text and images, as is the case with the text (which does not omit any of the original text) at the center of this study. To date, much of the documentation on the effectiveness of graphic novels has been anecdotal investigations into the responses students have to reading graphic novels; however, no studies have addressed student performance on assessments or their comprehension of the material. The enjoyment students garner from reading graphic novels does not, in and of itself, make them sound pedagogical tools; after all, students enjoy a great many things (e.g., sleeping or playing cards) which we would generally not consider pedagogically beneficial. This study empirically investigated the impact of the utilization of graphic novels on the ELA classroom using William Shakespeare’s *The Tragedy of Macbeth*. The study focuses on the activation of schema appropriate to the subject being explored, comprehension of complex speaker / listener interaction, performance on assessments, and engagement. Results indicated a statistically significant difference between the performance, the comprehension, and the engagement of students presented with the play in graphic novel form and students presented with the play in traditional drama form. Discussion centers on supporting anecdotal evidence with empirical evidence and encouraging educators to utilize graphic novels in their classrooms. Future research opportunities include investigation of taxonomic rank of discussions, of applications at varying class levels (e.g., academic,
honors, AP, etc.), and of students’ perceptions of textual accessibility when utilizing a graphic novel versus text-only literature.
Visualizing Literacy: Determining the Impact of Graphic Novels in the English Classroom on Reading Comprehension

by
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A dissertation submitted to the Graduate Faculty of North Carolina State University in partial fulfillment of the requirements for the degree of Doctor of Philosophy

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DEDICATION

To my wife, Liz:
Without your great idea, I’d be nowhere. Your encouragement and feedback have been invaluable. Thank you for everything you’ve done to support me in this process.

To my children:
Thank you for giving me a reason to work so hard and an even better reason to take a break now and then from the hard work.

Won’t it be cool to tell your friends that your Dad has a Ph.D. in comic books?

To my students:
Thank you for your support and enthusiasm.

and

To my committee:
Thank you for your guidance, wisdom, and insight.
On a cold, blustery Wisconsin night in early February... Nah, too long.

I am Alex Russell Kaulfuss. I am a teacher. After completing my Master of Science in English Education at NC State University in 2006, I earned National Board Certification in Secondary English / Language Arts, added mathematics to my teaching license, won the Jenrette Teaching Excellence Award, fathered a wondrous little girl, wrote a couple of comic books, presented at a few professional conferences, and enrolled in the doctoral program in Curriculum and Instruction at NC State. I've been busy. Whatever will I do with my time once I graduate?
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*If I have seen a little further it is by standing on the shoulders of Giants.*

– Sir Isaac Newton, 1676 February 5
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CHAPTER ONE: INTRODUCTION

Reading a comic book is as a complex semiotic process – it involves understanding how the interactions between words and images have been manipulated in order to achieve a story or joke.
—Mila Bongco (2000, p. 46)

AN IMPETUS

As a teacher, and especially a teacher of classes in debate and theory of knowledge (a metacognitive philosophy course), I find that I often have the opportunity to engage in the most wildly philosophical conversations one could imagine – conversations about the consequences of time travel, about the possibility of floating space colonies, about Earth’s theoretical twin which forms a syzygy with our Earth and the sun. I have even had the opportunity to explore questions of the nature of our dimension compared to other possible dimensions, to question whether or not the same laws of physics and social customs might apply, to question whether we are the same people.

During an animated conversation about the multiverse, I excitedly pulled from my bookshelf a trade paper back (see definition on page 16) entitled The Mighty Thor: Loki (Rodi & Ribic, 2007) and flipped through the stunningly illustrated pages, looking for a set of paintings about three fourths of the way through. Preceding the sought pages, Loki, the Norse god of mischief (and, incidentally, the one responsible for the formation of the original Avengers), has imprisoned his adopted brother Thor, the god of thunder,
and it appears that he may have finally bested Thor, as he has ordered his execution. Loki demands that Karnilla, an Asgardian goddess of destiny and an accomplished sorceress, be brought to him, so he can know the outcome of his heinous endeavors. The images Karnilla conjures in response to Loki’s query display an amazing interpretation of the many Thors and Lokis which reside (and battle endlessly) in other universes. Figure 1.1 displays part of what Karnilla allows Loki to see:
Figure 1.1. Visions of the multiverse: Karnilla shows Loki his “multiversal” fate.


Loki is shown that no matter the nature of the other universe, whether its population is rooted to the earth and struggles to reach the sky, the inhabitants wear the character of their souls as the color of their flesh, or the people are more energy than flesh, he and Thor will always be at odds, and he, the lesser of the two gods, will always be the loser.
While the student to whom I’d shown Rodi and Ribic’s vision of the multiverse seemed genuinely interested in the resource I’d pulled into our discussion, some of the lookers on, instead of seeing any pedagogical value in the text, saw an opportunity to jibe, “Kaufuss, did you just seriously pull out a comic book? Really? What, are you, like, in third grade?”

Yes, that’s right: another pothole on I-Like-Comics Highway, another notch in the trench club called comic-book-readers-are-geeks-and-losers. Many readers of comic books and graphic novels (see definitions on pages 12 and 14) feel that their reading interests and abilities are marginalized by people far cooler than they, pushed into a corner, as it were, like the lone reader described by Katie Monnin (2008) in the opening of her dissertation:

Hidden somewhere in the back of most bookstores these days you can find a section labeled “graphic novels.” And if you happen to find this section... you will also find something else somewhat hidden in the bookstore. Sitting in a corner or sometimes on the floor, sprawled out and immersed in a book, sits a graphic novel reader... The unknowing, somewhat hesitant, and yet excited reader typically tells me the same story, and it sounds something like this: “I read these because I’m not good at reading in school.” Actually, this statement is pretty much verbatim what they tell me. (p. 1)

I feel a certain kinship with the generic graphic novel reader Monnin introduces, as she proposes most comic book and graphic novel readers would, because I am a
terribly, laboriously slow reader; I read like a dying mud turtle trudging through half-frozen molasses. Yes, even though I am an English teacher, I read that slowly, but despite that, I very much enjoy reading. Comic books and graphic novels appealed to me as a young reader because they presented me with something that print-only texts didn’t: completion.

Imagine the situation in which I found myself: the frustration of being a person who loves to read but who lacked the ability to complete a text in a reasonable amount of time. Comic books and graphic novels, besides being terribly entertaining, allowed me to indulge in a favorite hobby without the aggravation of my decrepit pace. I know that comics kept me on the literary path that lead to becoming an English teacher and being eventually able to navigate texts without frustration, albeit still slowly, instead of becoming someone who hates reading.

It is for this reason that I embarked on this current study of the impact of and the assistance offered by comic books and graphic novels. I believe that they have sound pedagogical benefits which need to be explored.

**CONTEXT OF THE PROBLEM**

Few things distress an English / Language Arts (ELA) teacher more than hearing a student struggle with and become frustrated by the act of reading aloud. Numerous considerations fuel this distress, these two among them: (1) the fact that a student is struggling with literacy at all, that a student has been promoted through the public
education system without successfully mastering various reading skills, and (2) that texts which should be delivered mellifluously (such as Shakespeare’s Sonnet 73, Homer’s Odyssey, Chaucer’s Canterbury Tales, etc.) are, instead, delivered as choppy, sporadic versions of themselves, a fact which, in and of itself, leads exponentially to more problems. Further problems include: (a) that some teachers avoid asking certain students to read aloud (therefore, by ignoring the difficulty, confounding it); (b) that loved pieces of literature are presented as torturous quagmires through which a student is forced to slog; and (c) that one student’s labored reading of a text may serve as the vehicle by which other students’ understanding is undermined.

Early in my teaching career, a girl timidly approached me after school one day with a request she was almost terrified to put forth. She asked that I stop having students read aloud in class. Her request wasn’t founded in any sort of desire to avoid the task of reading aloud herself. It, rather, came from the struggle she faced in trying to understand the literature when it was read aloud by other students who grappled with literacy.

Before that moment, such a dynamic had never even occurred to me. I was now faced with the difficult task of balancing the value I believed that read alouds held with the accessibility of the text for all. As a fairly new teacher, I then realized how complex a path it is to conquer literacy and enable my students to practice using the skills needed for comprehension, be it through reading to oneself or listening.
Anyone can easily see why concerns abound when students lack proper literacy skills, and teachers, researchers, specialists, etc. have proposed and investigated myriad strategies to equip students with the skills necessary for literacy.

**STATEMENT OF THE PROBLEM**

One literacy strategy, which has received scant attention, is the use of graphic novels and comic books to aid in literacy. By and large, when people think of graphic novels and comic books, it is not typically literacy pedagogy that comes to mind, but rather the stereotypical fanboy (see definition on page 12) (e.g., Evanier, 2001) or the misunderstood loner mentioned earlier. Often, people envision comic books and graphic novels as fantasy fodder for antisocial, awkward, developmental teens, whose only interest in them is the depiction of scantily clad heroines whose anti-gravitational breasts fill the pages and overfill their costumes. This view is sadly in line with the argument presented by Fredric Wertham in his 1954 *Seduction of the Innocent* in which he claims that comic books are a primary cause of juvenile delinquency (more on this text in Chapter Two). Critics often neglect to consider the numerous advantages offered by graphic novels and comic books illustrated by proponents (cf., Bucher & Manning, 2004; Crawford, 2004; Swain, 1978) such as encouraging reluctant readers, fostering independent reading, introducing new vocabulary through context clues, and assisting with comprehension. Critics, also, often beli graphic novels as texts which discourage
students from reading other types of texts, a claim which researchers (e.g., Swain, 1978; Schwarz, 2002) have disproved.

Moreover, in the minds of many educators an in- and out-of-school reading dichotomy is inherently detrimental to students. Hull and Shultz (2002), in their book *School’s Out: Bridging In- and Out-of-School Literacies*, claimed that some students who have difficulty with in-school texts may actually be literate and intelligent readers in their out-of-school literary endeavors. Just as I struggled to some degree with the pace of reading and found some success with comic books and graphic novels, a number of students find similar success but their reading accomplishments are delegitimized because what they’re reading doesn’t really count. Kate Monnin (2008) argues that “the gap between in-school and out-of-school literacies [is] a growing problem in today’s current literary climate” (p. 2) and asserts that texts such as graphic novels are one way to bridge this gap.

Another consideration fuels the current study: In what some (Monnin, 2008; Buckingham, 2003; Kress, 2003) are calling “the new media age”, classrooms are not adequately equipping students to read, critique, nor produce media texts (see definition on page 15); rather, they are adhering to an outmoded presentation of text-only literacy. Gunther Kress (2003), endeavoring to call educators’ attention to this new age of media and media literacy (see definition on page 16), asserts in *Literacy in the New Media Age* that we are experiencing a communication revolution akin to that which occurred with the invention of the printing press:
Two distinct yet related factors deserve to be particularly highlighted. There are, on the one hand, the broad move from the now centuries-long dominance of writing to the new dominance of the image and, on the other hand, the move from the dominance of the medium of the book to the dominance of the medium of the screen. These two together are producing a revolution in the uses and effects of literacy and of associated means for representing and communicating at every level and in every domain. (p. 1)

The use of comic books and graphic novels is one way educators can expose students to current mediums (viz., the Internet, PDA’s, film, etc.) which utilize various forms of communication at once (e.g., images and text).

**Purpose Statement**

The purpose of this empirical study is two-fold: (1) to test the argument for incorporating graphic novels and comic books, as media texts, into the ELA classroom, and (2) to illustrate the affordances and constraints of using graphic novels for instruction.

**Need for the Study**

Research is needed to explore and identify effective ways to improve literacy and foster success among students. As it stands now, many students graduating from public education systems do not acquire the literacy skills necessary for success in a
post-high school world. A report published by the National High School Center (Rutenberg, 2009), based on data from the 2009 National Assessment of Educational Progress\(^2\), about high school literacy supports this point; according to the report, 27 percent of high school students cannot even read at a basic level\(^3\). Moreover, only 35 percent of students performed at or above the proficient level on reading assessments.

Additionally, a number of educators and researchers (Bickers, 2007; Schwarz, 2006; Crawford, 2004; Mendez, 2004; Bucher & Manning, 2004; etc.) recognize the pedagogical potential of comic books and graphic novels; however, the majority of articles supporting their use simply offer anecdotal arguments about the enjoyment comic books and graphic novels have to offer. They, by and large, discuss how graphic novels can attract reluctant readers. Very little mention is made of the impact these texts have on student learning. Do students better understand the texts, just because they like looking at the pictures? Is there a marked improvement in a student’s ability to complete literary tasks because of comic books and graphic novels? Are test or quiz scores improved by the use of comic books and graphic novels? Are students better equipped to evaluate or analyze texts because of the added graphic component? Are remembering and understating positively impacted by comic books and graphic novels?

\(^2\) New data from the 2011 NAEP reading assessment indicate a slight positive trend for eighth-graders. The new data was not used for this study as it only includes information for 4\(^{th}\) and 8\(^{th}\) graders, not high school students.

\(^3\) For descriptions of achievement levels see Appendix 7.4 on page 130.
This study is needed to support the anecdotal evidence already available with empirical evidence about the impact of using comic books and graphic novels and may help determine to what extent the use of comic books and graphic novels is an effective tool in supporting student literary success.

**Research Questions**

The purpose of this empirical research study was to investigate the impact of comic books and graphic novels in an English classroom in a high school setting. Specifically, this study addressed these research questions:

*Research Question One*: What is the relationship of the use of comic books / graphic novels to students’ reading comprehension (see definition on page 16)?

*Research Question Two*: What is the relationship of self-reported engagement ratings to reading comprehension scores? Additionally, what is the relationship of the use of comic books / graphic novels to self-reported engagement ratings?

*Research Question Three*: What is the difference, if any, for males and females regarding Research Question One; likewise, what is the difference, if any, for students of different academic levels (e.g., AP, honors, academic)?
DEFINITIONS OF TERMS

1. comic book – One of the most quoted definitions for the term “comic book” is one offered by Scott McCloud in *Understanding Comics: The Invisible Art* (1993): “juxtaposed pictorial and other images in deliberate sequence, intended to convey information and/or to produce an aesthetic response in the viewer” (p. 9). Generally, a comic book is a bound work which contains a series of images, intending to tell a story, which may utilize dialogue and brief prose statements. Typically, these works are between 22-26 pages in length, and, while a single comic book can contain an entire story (called a one-shot), comic books usually contain part of an ongoing plot. In his Master’s thesis, Casey Roberson (2008) notes that “though comics typically include text, it is the visual language of these and all successive works which defines comics for our generation, and this is the ‘language’ where we will search for thoughtfulness, imagination, and innovation” (p. 6).

2. fanboy – Tim Barribeau (2008) captures the stereotypical essence of the fanboy by noting that “[Apple computer] fanboys have always devoted equal parts of their mind to genuine reasons to praise their chosen corporation, and to blindly ignoring its faults” (¶ 14). Barribeau also refers to these devoted fans as “rabid fans” who operate with a “rabid-single
mindedness” (¶ 7). Generally considered a derogatory term, “fanboy” refers to someone who is completely devoted, almost to the point of obsession, to a particular subject. In the present context, a fanboy would refer to someone totally enraptured by the escape offered by the heroes, the worlds, and (especially) the women of comic books. Evanier (2001) offers a tongue-in-cheek pop culture description of fanboys in the six issue mini-series Fanboy. Figure 1.4 depicts two of the stereotypical fanboy fantasies which keep devoted fans locked in their bedrooms, away from normal social interaction: (1) the acquisition of an Amazonian lover who fulfills the fanboy’s needs and (2) the discovery of hidden superpowers which manifest themselves in a moment of great need. Another description of fanboys is offered by Evanier’s protagonist fanboy himself: “I live for comic books! I spend every cent I make on them! I don’t bathe!” (p. 8).
3. **graphic novel** – Generally, people think of graphic novels in two ways: either (1) as a long comic book, containing a full and complete story or (2) a work falling into the novel genre which uses images, in conjunction with text, to tell a complete story. There is some contention as to who first coined the term “graphic novel”. Will Eisner is often given credit for the term because of his ambitious work *A Contract with God* (1978), a text which some people contend is actually a trade paperback (defined below).
Despite who gets credit for the term, Will Eisner’s goals for *A Contract with God* form a sound foundation for understanding what a graphic novel is; Monnin (2008) writes,

Eisner wanted to write and illustrate a story that used images to encapsulate all of the elements of canonical literature, like depth in characterization, plot, setting, theme/motif, irony, rising and falling action, and so on.

With graphic novels, his aim was to capture the traditional conventions of literature. (p. 9)

4. media text – Buckingham (2003) writes, “media texts often combine several ‘languages’ or forms of communication – visual images (still or moving), audio (sound, music, or speech), and written language” (p. 4). Furthermore, in *Media Education* (2003), Buckingham makes an argument for the incorporation of media texts into the curriculum. He notes that “in the modern world, ‘media literacy’ is just as important for young people as the more traditional literacy of print” (p. 4). With regard to the current study, a media text is a text that incorporates multiple modes of communication (viz., images and text) working in conjunction to present a whole greater than its disparate parts.
5. media literacy – Buckingham (2003) defines “media literacy” as “the knowledge, skills, and competencies that are required in order to use and interpret media [texts]” (p. 36). The national literacy act (National Institute for Literacy, 1991) defines literacy as “an individual’s ability to read, write, and speak in English, and compute and solve problems at levels of proficiency necessary to function on the job and in society, to achieve one’s goals, and develop one’s knowledge and potential” (p. 10). Modified slightly to apply to media literacy, part of the national literacy act’s operational definition for literacy would read thus, “[media] literacy means an individual’s ability to read and [produce media texts]”.

6. trade paperback (TPB) – Different from a graphic novel, a trade paperback is a reprinted collection of stories originally published as separate comic books. A trade paperback will usually collect an average of six issues (comics) and tries to capture an entire story arc. Typically, trade paperbacks will also contain exclusive content such as alternate covers, preliminary sketches, and author’s/artist’s notes.

7. reading comprehension – Prima facie, one might imagine the definition of “reading comprehension” to be so obvious that only a severe want of wit could induce an author to dedicate an entire section to its examination; after all, a quick Internet search returns a clear and concise definition of reading comprehension as “understanding what one has read.” As I am,
indeed, exploring this term in some detail in the following section, either

I suffer no mean deficit of intellect or the definition of “reading

comprehension” is more complex than a cursory glance suggests.

A BRIEF EXPLANATION OF READING COMPREHENSION

In order to evaluate reading comprehension, one must, undoubtedly, know what

reading comprehension actually is. Based on the clear and concise definition offered

above, the proper evaluation would be to simply ask a student, “Did you understand

that?” However, tests of reading comprehension ask so much more, so the issue really

becomes what factors contribute to reading comprehension and, more importantly,

how can those factors be manipulated to increase comprehension?

Before going any further, I should note that the topic which I intend to briefly

explore in this section has been the subject of myriad studies, dissertations and theses,

journal articles, and books; it is not my intention, by any means, to suggest that the

material in this section is the result of exhaustive, analytical research, but rather an

explanation of the conclusion at which I’ve arrived for the purpose of creating the

evaluation tool which was used in this study.

Simply stated, in order to design an appropriate evaluation tool for this study, I

needed to know what to put on it; I, therefore, sought out various articles and books

which purported to answer the question: what factors contribute to reading
comprehension? Table 1.1 offers the fruits of my brief investigation; an explanation follows.

Table 1.1. Factors Contributing to Reading Comprehension

<table>
<thead>
<tr>
<th></th>
<th>Formal Schema</th>
<th>Linguistic Schema</th>
<th>Content Schema (Prior Knowledge or Extra Textual)</th>
<th>Content Schema (Subject Matter or Textual)</th>
<th>Motivation, Engagement, &amp; Purpose</th>
<th>Students’ Intellect (Intelligence &amp; Reasoning Ability)</th>
<th>Fluency</th>
<th>Syntactic Features</th>
<th>Vocabulary &amp; Decoding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lenz (2005)</td>
<td>X</td>
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<td>X</td>
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<td>Wu &amp; Hu (2007)</td>
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<td>Pavlak (1973)</td>
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<td>Torgesen (2006)</td>
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<td>Tytler (2010)</td>
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<td>August, Francis, Hsu, &amp; Snow (2006)</td>
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<td>Canney &amp; Winograd (1979)</td>
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<td>5</td>
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<td>7</td>
<td>2</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

I began reading articles with a blank table waiting on my laptop screen, and as various authors concluded that different elements contributed to reading comprehension, I added column headers across the top of the table. Many of these studies are individual research endeavors; however, some (e.g., Canney & Winograd, 1979; Pearson, Roehler, Dole, & Duffy, 1984; and August, Francis, Hsu, & Snow, 2006) are syntheses of other research. As the table indicates, general agreement
exists among researchers that four major components comprise reading comprehension: (a) content schema; (b) motivation, engagement, and purpose; (c) the student’s intellect; and (d) vocabulary and decoding. These are illuminated in Chapter Two.

While the table suggests that there is variation in what educators think goes into reading comprehension, the main four upon which researchers seem to agree were used to create the evaluation tool for this study; this is discussed further in Chapter Three.

**THE MACBETH GRAPHIC NOVEL: WELL IT DESERVES THAT NAME**

In preparation for the current study, I conducted a smaller, yet similar, pilot study, using the same text. The original language of Shakespeare was used in both the text-only version of the play, and the graphic novel version. The results of the study spoke well of the pedagogical value of graphic novels, so I attempted to publish the findings. My manuscript was rejected. Initially, the sting smarted too much for me to absorb the whole of the rejection letter; I simply saw “No” writ large across the page. After a time, however, I was able to revisit the letter and consider the rationale for the rejection. The primary reason, it turned out, was that my manuscript had been rejected because the editors didn’t believe that graphic novels should be considered legitimate texts, despite evidence to the contrary contained in the very study they were rejecting. The editors wrote:
Our reason [for rejecting the ms.] is that there is a flaw with your Research Question and choice of methodology that disqualifies the study from consideration for publication in [journal name omitted]. Simply put, Shakespeare’s original text of Macbeth and a graphic novel version of it are so totally different from one another and the experience of reading each is so different that no valid conclusion about whether the latter makes a suitable substitute for the former can be made.

This argument reminded me of an editorial article I came across recently from critic Tony Long (2006), copy chief for Wired News (www.wired.com), who wrote the following after learning that a graphic novel had been selected as a finalist for the National Book Awards for 2006:

I have not read this particular "novel" but I'm familiar with the genre so I'm going to go out on a limb here. First, I'll bet for what it is, it's pretty good. Probably damned good. But it's a comic book. And comic books should not be nominated for National Book Awards, in any category. That should be reserved for books that are, well, all words. This is not about denigrating the comic book, or graphic novel, or whatever you want to call it. This is not to say that illustrated stories don't constitute an art form or that you can't get tremendous satisfaction from them. This is simply to say that, as literature, the comic book does not deserve equal status with real novels, or short stories. (Oct. 26, online, my emphasis)
To pour a bit more salt on it: John Mason Brown (in Wertham, 1954) writes, in the *Saturday Review of Literature*, of a different graphic novel adaptation of Shakespeare’s *Macbeth*, “To rob a supreme dramatist of the form at which he excelled is mayhem plus murder in the first degree... although the tale is murderous and gory, it never rises beyond cheap horror... What is left is not tragedy. It is trashcan stuff,” (p. 22). Basically, Brown argues that *translation*, a literacy strategy lauded by many educators, especially those versed in media education (Buckingham, 2003), is murder and mayhem. The point is that the presentation of “literature” in a graphic novel is paradoxical, at best.

With so many respected people in respectable positions of intellectual influence arguing against the legitimacy of graphic novels and comic books, I thought it might befit the field to find out what English teachers thought about the legitimacy of such texts. I decided to investigate. I conducted a qualitative study, the purpose of which was to determine whether or not teachers experienced with Shakespeare consider the graphic novel version of *Macbeth*, produced by Classical Comics, to be a legitimate representation of Shakespeare’s *The Tragedy of Macbeth*.

The Research Questions and results of the pilot study are presented here; the basic methodology is included as Appendix 7.1. Findings are organized according to the Research Questions guiding the pilot study.

*Research Question 1: Are the characters portrayed, in the graphic novel, in a manner that falls in line with teachers’ expectations?*
With the exception of a brief critique by one evaluator as to the “cartoony” look of some of the characters, the teachers interviewed felt that the artist had presented the characters in a manner which would befit Shakespeare’s vision and would benefit students’ understanding of the nature of the characters. JP noted that the colors accompanying the characters assisted a reader in understanding their natures.

Unanimously, teacher evaluators agreed that the graphic representation of characters would help readers, especially struggling readers, navigate the text more deftly. JP and LK especially appreciated the graphics which accompanied the cast of characters at the beginning of the text. KM noted how the rendering of certain characters and elements (Banquo’s ghost, the apparitions, and the dagger) in a spectral blue color would, she believed, help with comprehension.

**Research Question 2: Is the language of the graphic novel accurate to the original text?**

For the most part this question was included to address the possible criticism that the graphic novel may have summarized or left out parts of the text. Some versions of the graphic novel do alter the text; however, the version used for this study included every word of Shakespeare’s play. Teachers agreed that, in fact, the language of the graphic novel was true to the original text.

Furthermore, all five teachers interviewed independently noted that the graphic novel’s use of various word balloons would be of immense benefit to all students. Regular, spoken dialogue is written within a solid bubble; asides and secret
conversations are written within dotted line bubbles; and thoughts, which would have to be spoken on stage, are written within cloud-like thought bubbles. They believe this distinction would be very helpful to all readers. PH noted, however, that, despite the accuracy of the text, there had been too much editorial liberty taken with placing bold emphasis on some of the words.

KM noted that the manner in which the graphic layout broke characters’ long speeches into various frames was more in line with what one would see on stage and was, thus, very beneficial to students:

There were two different dialogues where I thought this wasn’t exactly how I remembered it, so I went back to the original and realized that, in fact, the language is exactly like the original. But it’s broken up between two different frames, so this is more like what I’d see on stage, action being paired with dialogue. I think the advantage of the graphic novel is like the advantage of watching it on stage, that you can pick up on all of these nuances that often are lost in the plain text. I think that the frames did that for me.

Research Question 3: Does the graphic representation enhance one’s vision of the plot, fall in line with one’s vision of the plot, or contrast one’s vision of the plot?

Three of the evaluators, KM, JP, and LK, noted that the graphic novel enhanced their visions of the plot. KM and LK argued that the graphic presentation, as mentioned above, fell more in line with what one would see in a stage production, and JP noted that the colors used to surround the characters at various points helped the plot move
forward. KM thought that the smoke and fog which surround the characters at various points lent assistance to the development of the mood.

PH and JB said that the graphic novel fell pretty much in line with their views of the plot. PH noted that the pictures did a lot of the work that he normally has to do when he pauses during a read-aloud to explain certain plot elements.

*Research Question 4: Would a teacher’s explanation of themes be helped or hindered by the graphic novel?*

Four of the teachers interviewed believed that the graphic representation would greatly help a teacher’s explanation of various themes in the play. JP pointed out that she would use the facial expressions (likewise KM with Malcolm and Donalbain’s tears) of the characters to explain role dynamics in the play, especially the conflict between the masculine and the feminine.

PH seemed to lean away from the graphic novel in this area, preferring to explain themes in his own way, instead of being led into a certain explanation because of how the scenes had been illustrated.

*Research Question 5: What are teachers’ overall opinions about the legitimacy of the graphic novel version of Macbeth?*

The overall opinions of all five teachers were overwhelmingly positive. All argued that the graphic novel would be a tremendous help to readers, especially struggling readers. The overarching issue in this pilot study was to determine whether or not teachers found the graphic novel version of the play to be a legitimate substitute
for Shakespeare’s *The Tragedy of Macbeth*. Despite the claims made by a number of critics (who, incidentally, are not teachers), the five teachers who participated in this evaluation of the graphic novel determined the text to be a worthy and comparable version of the plain text version.

**Summary**

Students’ literacy struggles are a grave concern of educators. In early grades, a number of strategies are employed to help students who struggle with reading and comprehension; at some point, however, because of the logistics of social promotion, larger classes, and various other issues with which teachers contend, struggling students are left to their own devices, which are, more often than not, woefully inadequate for them to catch up to their peers, and they fall further behind, eventually playing the school game just enough to move through the system unnoticed. Various strategies need to be explored which can be employed despite the number of students in one classroom and regardless of the amount of time a teacher has available for one-on-one help – which is virtually none at the high school level. The use of graphic novels, a literacy approach which, despite gaining some traction in recent years, remains largely ignored, may positively impact student learning and literacy.

This chapter introduced the complex issues surrounding the use of graphic novels in the English classroom and proposed the need for studying how graphic novels can enhance literacy instruction. Through a variety of lessons, questions, assessments,
and discussions, the current study seeks to determine whether or not this proposed approach can positively impact student learning and literacy.
CHAPTER TWO: REVIEW OF THE LITERATURE

INTRODUCTION

For the most part, research surrounding the use of comic books and graphic novels in the ELA classroom is anecdotal and lacks firm grounding in any philosophical, conceptual, or theoretical frameworks. Some argue that the very act of outlining a pedagogical approach which utilizes graphic novels establishes a conceptual framework; however, aside from some pursuit of happiness, very little of the research supporting the use of graphic novels establishes clear educational goals. The goals for using graphic novels and comic books in instruction need to be outlined if the argument for their use is to be successful.

This chapter established the philosophical, conceptual, and theoretical frameworks which ground the current study and surveys the available literature, illustrating the lack of empirical data surrounding the utilization of graphic novels in the ELA classroom.

PHILOSOPHICAL FRAMEWORK

One of the most common questions that an educator will receive from his/her students is likely to be Why do I need to know this?, or When am I ever going to use this? As a senior English teacher, I hear this question an incredible number of times when the class is exploring the works of William Shakespeare. In her article Why Study
Shakespeare?, Amanda Mabillard (2000) outlines four reasons why Shakespeare’s works are relevant, popular, and important: (1) in a way that few writers have, Shakespeare illuminates the human experience, (2) simply, he tells great stories, (3) his compelling characters are unequalled in literature, and (4) his ability to turn a phrase has led to many of the sayings we now use. Mabillard also notes that one of the main reasons that John Bartlett compiled his first book of quotations was so that people would have an easy reference to Shakespeare’s thoughts on the human experience. Marchette Chute (1956) says of Shakespeare’s writings,

William Shakespeare was the most remarkable storyteller that the world has ever known. Homer told of adventure and men at war, Sophocles and Tolstoy told of tragedies and of people in trouble. Terence and Mark Twain told comic stories, Dickens told melodramatic ones, Plutarch told histories and Hans Christian Anderson told fairy tales. But Shakespeare told every kind of story – comedy, tragedy, history, melodrama, adventure, love stories and fairy tales – and each of them so well that they have become immortal. In all the world of storytelling he has become the greatest name. (p. 11)

Simply put, people need to read Shakespeare; however, far too often, students feel that Shakespeare is inaccessible, and some teachers avoid Shakespeare because they feel that his work is out of reach for many students. Despite the difficulty, I believe that all students can read Shakespeare – not watered-down, dumbed-down versions, but Shakespeare in his own words – and garner insight and understanding from his
works, not just simply muddle through the words. Part of the rationale for this is explained further along through the Automatic Information Processing Model.

Another aspect of the philosophical framework is the belief that engagement, comprehension, and enjoyment (ECE) work together in a dynamic way to aid students in achieving overall success. Figure 2.1 depicts this dynamic interaction; an explanation follows.

![Figure 2.1. The ECE Model](image)

In this model, teachers begin the engagement process before the text is given to the students with the use of narratives, activities, discussions, presentations, etc. As the pre-text activities are relevant to the text or concept being explored, this prior engagement supports initial comprehension. Comprehension, mingled with engagement, then fuels student enjoyment. I do not mean to imply that simply because
a student comprehends something that (s)he will automatically enjoy it; enjoyment, in this dynamic, takes two forms: (1) entertainment and (2) accomplishment. With the former type of enjoyment, a student becomes more excited about the literature or concept, and this enjoyment feeds back into the engagement initially, and continually, provided by the teacher, thereby building its power. The latter form of enjoyment, on the other hand, best described as clearing one of the hurdles of understanding the whole of the concept or text, may not feed into a student’s engagement, but does feed back into the comprehension component of the model. Once in the cycle, a student will continue through until (s)he acquires enough knowledge about the concept or text to exit the cycle and move to the goal of overall success.

A recent conversation about an AP Calculus class with one of my students should illuminate my use and description of enjoyment. DB had come in during lunch to pick up his graded analysis of Shakespeare’s Sonnet 17, and we began talking about whether or not a teacher is more effective if (s)he is entertaining. He noted that while he certainly preferred for a teacher to be entertaining, it wasn’t a necessary quality and followed up by saying that he didn’t find AP Calculus entertaining in the slightest, so he couldn’t garner any sort of enjoyment in that way. But when he understood a particular concept, cleared a hurdle, as it were, that gave him a different form of enjoyment. Originally, my diagram of the ECE model contained only the label “enjoyment”, which branched in two directions; after this conversation, though, I modified the graphic to note two different forms of enjoyment and placed them strategically within the model.
One familiar with Mihaly Csikszentmihalyi’s (1991, 1990) work on flow may see some similarity between the dynamic shown in Figure 2.1 and his flow cycle (see Figure 2.2); however, while we share some common elements, there are three main differences: (1) the impetus for the ECE model is grounded in my autobiographical approach to instruction (Kaufuss, 2006); (2) while there is a cyclical aspect to the ECE model, it is overall a linear concept; and (3) whereas success is part of the flow cycle, it is the ending place for the ECE model.

*Figure 2.2. “Flow Cycle”*


Finally, the third philosophical foundation of the current study addresses questions about the graphic novel’s pedagogical placement. *Do graphic novels and*
comics qualify as literature; are they art? To answer simply: graphic novels should be considered media texts.

Establishing graphic novels and comic books as media texts is not a difficult task as the definition and description of media texts could easily have been created with graphic novels in mind.

David Buckingham (2003) explains that media texts are texts which “combine several ‘languages’ or forms of communication – visual images (still or moving), audio (sound, music or speech), and written language” (p. 4). Furthermore, he describes media literacy as literacy “refer[ring] to the knowledge, skills and competencies that are required in order to use and interpret media” (p. 36).

Buckingham boldly asserts in Media Education that “in the modern world ‘media literacy’ is just as important as more traditional literacy of print” (p. 4) and that the highly questionable claim that we should study “literature” in isolation from other kinds of print texts represents more social judgment than the quality of other kinds of print texts. He points to a growing body of research (Livingstone and Bovill, 2001; Rideout et al., 1999; Silverstone, 1999) which claims that media texts occupy a significant (and increasing) portion of time in children’s lives and notes that “the argument for media education is essentially an argument for making the curriculum relevant to children’s lives outside of school” (p. 5).

Many researchers have noted that students often feel detached from the content that they are required to learn (Kaufuss, 2006; Gardner, 2004; Tomlinson, 2004,
2001), and because of this detachment, because students are not fully engaged in a particular text, they are less likely to understand it. It stands to reason, therefore, that if a teacher can build students’ interest, make them feel more engaged with a text or concept, that they will better understand it.

Contrary to what appears to be common sense, a widening gap exists between children’s worlds outside of school and the emphasis of many educational systems. Buckingham comments on the lunacy of this dynamic by discussing the social theory of literacies:

Research of print literacy clearly shows that different social groups define, acquire and use literacy in very different ways; and that the consequences of literacy depend upon the social contexts and social purposes for which it is used.

It is for this reason that such researchers tend to refer to ‘literacy practices’ or ‘literacy events’ rather than merely to ‘literacy per se: in other words, they regard reading and writing as social activities, rather than as manifestations of a set of disembodied cognitive skills.

From this perspective, therefore, literacy cannot be considered separately from the social and institutional structures in which it is situated. This is a social theory, which effectively dispenses with a singular notion of literacy and replaces it with a notion of plural literacies, that are defined by the meanings they produce and the social interests they serve. (p. 38)
Renee Hobbs (2007), in *Reading the Media*, comments on this social phenomenon, as well, by noting that “whether we like it or not, media [texts] have shaped our understanding of many aspects of social reality. Even more powerful than our own life experiences, media texts are at the center of our cultural worlds” (p. 6).

Renee Hobbs points to a redress of the issues hitherto discussed; she notes, “the use of popular culture texts not only stimulates young peoples’ engagement, motivation, and interest in learning, but enables them to build a richer, more nuanced understanding of how texts of all kinds work within a culture” (p. 7). Carmen Luke (2003), likewise, declares that scholars have argued for “broader definitions of knowledge, literacy and pedagogy which will include the study of the intertextuality of imageries, texts, icons and artifacts of new information economies, of media and of popular culture” (p. 27).

Graphic novels and comic books are exactly the kind of text referenced by these, and other, researchers. Graphic novels and comic books (1) address the intertextuality of images and text; (2) provide a greater link to students’ out-of-school literacy practices; (3) lead to greater student engagement, motivation, and interest (discussed in detail six sections hence); and (4) offer more easily navigable routes to students’ social literacy constructs.
CONCEPTUAL FRAMEWORK

Reading comprehension as it applies to this study:

As noted earlier in Chapter One, insofar as this study is concerned, four factors are included in the definition of reading comprehension; again, they are (a) content schema; (b) motivation, engagement, and purpose; (c) the student’s intellect; and (d) vocabulary and decoding.

General information about schema theory has been presented in this document, so more specific information will be discussed here. There are generally three types of schema (four, if one counts cultural schema): (a) formal schema, (b) linguistic schema, and (c) content schema. Though not foci of the assessment tool utilized in this study, formal schema and linguistic schema warrant a brief explanation.

Formal schema refers to knowledge of various formats and genres and the rhetorical properties they entail. In her 1984 study which demonstrates that formal schemata have an impact on reading comprehension, Carrell notes, “reading comprehension is an interaction between a reader’s background knowledge of and processing strategies for text structure, on the one hand, and the rhetorical organization of the text, on the other,” (p. 441).

Linguistic schema refers to knowledge of the syntactic features of various elements (e.g., paragraphs, sentences, phrases and clauses, and words) which are used to convey meaning. Some might suggest that the table (Table 1.1, page 18) created as the foundation of the assessment tool of this study bears a flaw in that “decoding”
ought to be considered part of linguistic schema, and not be paired with “vocabulary”; after all, as Singhal (1998) reminds readers, “linguistic or language schemata include the decoding features needed to recognize words and how they fit together in a sentence,” (¶ 5). Despite this characteristic, the two are in different columns because linguistic schema refers to something inherent in the reader (i.e., knowledge of language structure, etc.), while the research articles used in the creation of Table 1.1 suggest that what is important to reading comprehension is the end result of knowing the word and sentence meanings, however one comes to know it (e.g., the teacher scaffolds the reading or augments a student’s linguistic schema with his/her own).

On, then, to content schema, the first of the components which contribute to reading comprehension. Content schema refers to knowledge of the subject matter or content of a text, and, as Pearson, Roehler, Dole, and Duffy (1992) point out, an impressive body of research points to the importance of prior knowledge in text comprehension. Research clearly indicates that good readers use prior knowledge to help make sense of a text, while poor readers often do not. Poor readers can be taught to use, and even alter, their prior knowledge; when they learn to put such knowledge to use, their comprehension improves. Prior knowledge is so pervasive and important that we can only wonder why it traditionally has received to little curricular attention. (p. 157)

According to Alderson (2000), content schema can be divided into two further categories: (a) background knowledge and (b) textual knowledge; this assertion is
supported by a factor analysis of reading comprehension components, where Wu and Hu (2007) concluded that the two types of content schema have distinct characteristics and could be investigated individually, but that they should not be taken out of each others’ contexts, as two sides of the same coin – distinct, but bound together. Both types of content schema aid a reader with comprehension. *Background knowledge content schema* refers to schemata present before reading begins and can aid the reading in making predictions about the text, which, as explained above in the section regarding psycholinguistic theory, can lead to faster reading and deeper comprehension. *Textual knowledge content schema* refers to schemata garnered from the reading itself (i.e., details and information from the text) which may be applied later in the same text. J.K. Rowling offers a prime example of textual knowledge content schema in *Harry Potter and the Sorcerer’s Stone* (1998). The audience is introduced to the fact that Ron Weasley is a fairly deft player of Wizard’s Chess when Harry receives a set for Christmas. This tidbit becomes relevant later when Harry, Ron, and Hermione must play a live-action version of the game as they hunt for the Philosopher’s stone (with which one can make an elixir of life). Thanks to Ron’s knowledge of and skill regarding the game, the obstacle is overcome. This concept, more commonly afforded the moniker “foreshadowing”, is a form of textual knowledge content schema. Readers must incorporate the information offered early in the text about the game of Wizard’s Chess and Ron’s skill with it in order to fully comprehend the events which play out later in the text.
The second component which contributes to reading comprehension is motivation, engagement, and purpose. Various researchers (Tytler, 2010; Wu & Hu, 2007; Lenz, 2005; Torgesen, 2006; Pavlak, 1973) have concluded that a positive correlation exists between reading comprehension and one’s motivation to read a text, engagement with the material, and/or grasp of the purpose behind reading the text. One might be motivated to read a text to gain further insight about a subject of interest (reading a biography about George Gordon, Lord Byron, to more fully appreciate Childe Harold’s Pilgrimage and Don Juan), engaged to read a text because one enjoys the material (some fans devoured the seventh book in the Harry Potter series in less than a day), and purpose-driven to read a text as the information contained therein is a necessary means to an end (reading an operations manual to ace an interview for a promotion). All too often, students fail to fully comprehend reading material not because of some intellectual deficit on their parts, but simply because they do not find the texts they are asked to read engaging. As I noted previously and will discuss further in the following section, much of the research regarding the use of comic books and graphic novels has centered around the engagement aspect of learning.

The third component which contributes to reading comprehension is the student’s intellect. Obviously, this aspect of reading comprehension deals with how smart the reader is, and while I would love to be able to say that reading comics makes you smarter, the type of study needed for that conclusion would overshadow the goals of the current study; therefore, this component will be omitted from the assessment.
material used for this study. Incidentally (and I’ll explore this further when I discuss opportunities for future research), such a study would revolve around the interplay of images and text, using Howard Gardner’s (1983) theory of multiple intelligences as a framework.

The remaining component of reading comprehension used here is *vocabulary / decoding*. Fundamentally, these terms do not denote different things; rather, vocabulary is the initial result of the decoding process. I have listed the two terms separately merely to highlight the fact that sometimes (or for some students) the decoding process is very nearly automatic (that is, entire words or phrases are given meaning instantly), while other times (or for other students) the process is more laborious (that is, meaning is attached to a word only after a near-grueling sounding-out episode). Whatever the case may be, the fact remains that in order to fully comprehend a text, the reader must know (or figure out) what words mean. Anderson and Freebody (1981) point to a number of researchers who present findings strongly correlating vocabulary knowledge with general intelligence and reading comprehension abilities, including Terman (1918) who suggested that measures of vocabulary knowledge could substitute longer tests of overall intelligence and Davis (1968) who identified vocabulary knowledge as one of the man factors of reading comprehension. Along the same line, Lenz (2005) argues that not only do poor decoding skills present challenges with a specific text, they also inhibit the overall development of language skills and strategies. Furthermore, Golinkoff (1975-1976) asserts that “a good comprehender seems to be
capable of rapid and accurate word recognition,” (p. 652). Generally speaking, in order to successfully decode, a reader must first recognize the letters being used, then associate the letters with their sounds, mentally sequence the sounds, determine the word, and finally bring forth the meaning of the word. Typically, if the meaning of the word is unknown, the reader is required to use the surrounding context to determine its meaning. The images which accompany the text in comic books and graphic novels add context from which a student can determine meaning.

The current study seeks to determine the impact of comic books and graphic novels on each of these aspects (excluding a student’s intellect) of reading comprehension. Expanding upon the hypothesis driving this study, comic books and graphic novels may affect (a) content schema in that the images will assist readers in activating appropriate schema (background knowledge content schema) and offer images with which to associate particular information (textual knowledge content schema); (b) engagement and interest in that the images add another level of entertainment to entice readers; and (c) decoding processes in that the images, as noted above, create a larger context to aid in determining meaning.

THEORETICAL FRAMEWORK

The argument for the use of graphic novels in the ELA classroom has potential grounding in several theories of literacy, including Mental Discipline Theory, Schema
Theory, Psycholinguistic Theory, and the Automatic Information Processing Model.

Following is an explanation of these four theories and how they relate to graphic novels.

**Mental Discipline Theory**

I must ruefully confess that when I was a student in high school, I only read about half of the books I was asked by my teachers to read. To be clear: I did not read half of the quantity of required books (e.g., 15 of 30 novels), but rather was able to finish about fifty percent of each novel before the teacher had moved on to something else – bear in mind, I am a terribly slow reader. This lead me to wonder how many students in high school actually read all of the works they are required to read by their teachers. After searching for some time for some statistics that would answer this question for me, I stumbled upon an interesting website: diddit.com. Users of this site generate pages about various life experiences; other users, then, visit the page and indicate whether they have done (or want to do) the particular thing. The page of interest to the present question is “Read the ‘Classics’ from high school”.

Before progressing any further, I will concede a few points; chief among them: I fully realize the reliability and validity of such a research method are highly questionable. Also, I know little to nothing of the research participants, and third, this type of survey affords a very haphazard manner of sampling. However, should anyone with any classroom experience or knowledge apply even a modicum of common sense to this
information, (s)he would argue that even though the precision may be questionable, the results still seem plausible.

Of the 2,215 users who responded to the survey, only 914 (41%) read Romeo and Juliet, the most popular work from the survey, in high school. Orwell’s 1984 and Animal Farm each earned about 31%. American Lit. staples The Great Gatsby, The Adventures of Huckleberry Finn, and The Scarlet Letter were read by only 28%, 26%, and 22% of students, respectively.

I could continue with examples, but the point, I believe, has been made. The reason that this is relevant to the current section is that according to the mental discipline theory, which traces its roots back to the writings of Plato and Aristotle, the mind is like a muscle and its various faculties need to be exercised regularly. Bigge and Shermis (1992) describe the theory as follows:

The central idea in mental discipline is that the mind, envisioned as a nonphysical substance, lies dormant until it is exercised. Faculties of the mind such as memory, will, reason, and perseverance are the “muscles of the mind”; like physiological muscles, they are strengthened only through exercise, and subsequent to their adequate exercise they operate automatically. Thus, learning is a matter of strengthening, or disciplining, the faculties of the mind, which combine to produce intelligent behavior. (p. 21)

Two important points can be drawn from this: (1) muscles which are ill-utilized have a tendency to atrophy; and (2) muscles which are utilized properly and repeatedly
develop “muscle memory”, and the tasks which they are asked to perform become easier, automatic.

The survey mentioned above leads us to disturbingly conclude that our high school students are well on their way to allowing their minds to atrophy. With the most popular text from the survey not even being completed by half of high school students, they are obviously not exercising their minds to the fullest capability. Furthermore, as the second point illustrates, the more students focus their minds on particular tasks, the easier the tasks become over time.

Graphic novels and comic books address this. I do not mean to imply that they are a panacea capable of fixing all of our students’ literacy and intellectual troubles, but, as research (Bickers, 2007; Crawford, 2004; Mendez, 2004) indicates, graphic novels encourage students to read more, a lot more. In some cases, such as that seen in Diane Roy’s classroom (Mendez, 2004), students chose to read double the number of graphic novels that they were required to read.

**Schema Theory**

Schema Theory (Bartlett, 1932), a constructivist theory, strives to explain how knowledge is constructed by proposing that all knowledge is organized into schema (i.e., knowledge structures). People have schema for everything, and each person’s schema is individualized.
A tremendous and easily navigable analogy can be drawn between Schema Theory and the appreciation of a good cup of tea. A schema is basically a packet of knowledge, not entirely unlike a teabag. Similar sachets of tea are kept together in the same canister, and these canisters are likely organized by type (red, green, oolong, etc.), region (Africa, India, China, etc.), time (breakfast, afternoon, dessert, etc.), or some other categorical assignment. Should the tea connoisseur find a new, exciting brew of Rooibos, he would locate the African Red section of his tea cabinet, open the canister most like what he’s just discovered, and place it accordingly amongst the teas already present. According to Schema Theory, the same sort of processes occurs with knowledge and information.

Let us consider the witch, a character in the Shakespeare play used in this study. For the most part, when the topic of witches arises, people likely think of the cannibalistic old woman who lives in an edible house or Baum’s wicked witch who melts when wet because it is these types of witches to which children are exposed in fairy tales. However, as one develops his/her own sense of literature and decides to read a work like *Harry Potter*, the sort of witches presented by Rowling, like a newly discovered tea blend, needs to be properly placed amongst the already present packets of knowledge. The learner opens the cabinet which contains information about fantastical creatures and people, then finds the canister containing witches, and finally sorts through the sachets to find the best place for Hermione Granger. It is even possible that
the learner may need to create a new category, for all the categories already present only contain information about evil witches.

Tracey and Morrow (2006) offer a concise description of the three processes for information organization governing Schema Theory:

Schema Theory articulates three processes through which knowledge structures change: accretion, tuning, and restructuring. In accretion, learners take in new information but have no need to change existing schemas (e.g., a gardener who is familiar with many types of flowers learns of a new variety). In tuning, an existing schema is modified to incorporate new information (e.g., a child who has only seen a small pleasure boat sees an oil tanker). In restructuring, a new schema must be created by the learner because the old one is no longer sufficient (e.g., a person who has held a stereotype abandons it as a result of a new experience). (p. 52)

Just because the information is present in one’s knowledge base, does not necessarily mean that one is able to access, or successfully navigate, it. Anderson and Pearson (1984) explain how a collection of disparate information (as described above), however well organized, may present a difficulty for struggling readers: there is “a process of deciding what schema among many should be called into play (emphasis in original) in order to comprehend a text. It is rarely the case when reading that one is told directly what schema to use,” (p. 269). This study seeks to determine if graphic novels can aid students in navigating and activating certain schema, appropriate to the
text currently being read, while leaving other schema (tea canisters) unopened, bypassing their enchanting fantasies of Miss Granger to find the evil, ugly witches who lurk in the shadows of their schema.

**Psycholinguistic Theory**

Psycholinguistic Theory (Goodman, 1967; Smith, 1971) holds as a central component that readers rely on language cueing systems to help them rapidly read text. According to this theory, readers use knowledge of language to make predictions about upcoming sounds, words, etc. which allows for faster reading. Tracey and Morrow note, Psycholinguistic Theory argues that readers use their knowledge about language, and the world, in general, to drive their thinking as they engage in the reading process. The theory suggests that as they read, readers make predictions about what the text will say based on their knowledge in these areas. If the text is consistent with a reader’s expectations, then reading proceeds easily and fluidly. If, however, the text is inconsistent with the reader’s expectations, then the reading process will become slower and more laborious and the reader will need to decode the text word by word. (p. 58)

Several factors play a role in aiding a reader’s formation of textual hypotheses. First, a reader’s overall experience with reading will aid him/her in this process. More specifically, experience with a particular kind of text will further aid in this endeavor. And as Heilman, Blair, and Rupley (1986) claim, “the more familiar a reader is with a
given topic, the less she needs to rely solely on the printed text. The reader’s knowledge of the topic and her language competence allow her to predict information and rely less on print” (p. 38, my emphasis).

A psycholinguistic aid which I believe has been overlooked by some experts and researchers regarding this (and like) theory is the use of images which could accompany a text, such as would be found in media texts, that is graphic novels and comic books. Elementary school teachers have found tremendous value in activities which utilize images to aid in reading comprehension, such as picture walks. Zeece (2003) claims Emergent and early readers benefit from a “picture walk” through a book. Upon first introduction of a story, children may be asked: What do you think this story is about? What is happening next? How do you know? How do you think the story might end? Discussion of the storyline in the context of the illustrations helps children to see that words and pictures work together. It provides them with a broader context to decipher meaning when they are first beginning to read. Later on, children may use the context of a word within the text to do a similar kind of decoding. A “picture walk” is an effective strategy for the introduction of new or unfamiliar vocabulary by highlighting a word and connecting it to the illustrations and/or context of a story. (p. 183)

When a student turns to a new page of a graphic novel, (s)he is immediately presented with myriad images alerting him/her to plot, action, conflict, emotion, etc.
These images help the graphic novel reader to make assumption about the text, which can, as the Psycholinguistic Theory proposes, lead to quicker, more accurate reading.

**The Automatic Information Processing Model**

The Automatic Information Processing model (LaBerge & Samuels, 1974) is a cognitive processing model with five major components: visual memory, phonological memory, episodic memory, semantic memory, and attention. While the model has several components and applications, *attention* plays the largest role in the current study and will be the focus of this explanation.

Attention is the central component of the Automatic Information Processing Model; LaBerge and Samuels (1974) explain two types of attention: internal and external. Internal attention refers to what is going on inside of a person’s mind. External attention refers to observable behaviors, such as using one’s eyes to read a text. Tracey and Morrow (2006) make an important suggestion based on this model:

The model suggests that if a student is reading a text without much comprehension, it may be because that student is experiencing too much of a cognitive load. This would be the case if the reader needs to allocate an excessive amount of cognitive energy to decoding words. If decoding uses all of the reader’s internal attention, there will not be adequate cognitive resources remaining to devote to message construction (comprehension). In such cases the
correct intervention is to lower decoding demands by giving the reader an easier text to read. (p. 141)

Parts of this study focus on the suggestion made in the above quote; however, instead of simply offering an easier text, the study measures the effectiveness of the graphic novel as a more accessible text.

**REVIEW OF LITERATURE ON GRAPHIC NOVELS**

To date, a number of articles have been published which issue a call for the utilization of graphic novels in the ELA classroom; however, many of these articles simply offer anecdotal arguments about the enjoyment comic books and graphic novels have to offer. They, by and large, discuss how graphic novels can attract reluctant readers. Philip Crawford (2004), for example, asserts, in *Using Graphic Novels to Attract Reluctant Readers*, “graphic novels strongly appeal to teens and are an invaluable tool for motivating reluctant readers,” (p. 26). The evidence presented for this claim is a description of his own experiences culled from workshops which he has led.

Likewise, in *The Council Chronicle* ("Using Comics and," 2005), NCTE offers a list of lessons, utilizing graphic novels and comic books, with which teachers have had success, all of which are anecdotal:

Comics and graphic novels can be used as a “point of reference” to bridge what students already know with what they have yet to learn [Shelley Hong] Xu says. For example, comics and graphic novels can teach about making inferences,
since readers must rely on pictures and just a small amount of text. By helping students transfer this skill, she says, teachers can lessen the challenge of a new book. (p. 1)

The results were fantastic, says [Cat] Turner… “Not only did the students become the experts, but they also demonstrated their awareness of the craftsmanship that goes into each of these texts through the creation of the [products]. (p. 2)

Using comics and graphic novels in the classroom is about harnessing students’ natural interests, explains Rachel Sawyer Perkins, a teacher at Dolores Street Elementary School in Carson, California. She also believes that it’s a way to teach important reading and writing skills. (p. 2)

Several newspaper, magazine, and journal articles, such as ‘Hamlet’ too hard? Try a comic book (Mendez, 2004), tell the story of Diane Roy, a high school teacher in New York. Roy teaches repeating ninth-graders, and she conducted a unit wherein students were required to read five graphic novels. Roy was floored to find that “there wasn’t a single student in this class of kids... who didn’t read double that number. They would read them overnight... they were reading them at lunch, in the hallway,” (Roy in Mendez, 2004, p. 1). There’s no doubt that graphic novels and comic books draw in readers, that they’re engaging or that they’re popular with people who typically don’t enjoy reading.
A number of articles published up to this point, moreover, speak to the popularity of comic books and graphic novels. Bucher and Manning (2004), for example, note that “adolescent readers have demonstrated considerable interest in graphic novels during the past several years.” Further, research presented in articles such as Reading the Comics in Grades VII and VIII (Witty, et al., 1942) simply demonstrates that a lot of students read comic books. An article appearing in Publishers Weekly (Bickers, 2007) argues the point, as well: as part of the discussion of the growing popularity of the graphic novel format, the author quotes Deb Wayshak, editor of a new Beowulf graphic novel: “Bookstores and libraries seem to be moving these books,” (p. 1). Bickers also notes that a number of publishing companies have a wealth of graphic novels in line for publication because of the tremendous reader demand.

Many of the articles published about the use of graphic novels are simply laundry lists of creative ideas. Several of the articles noted above provide such lists, as does Gretchen Schwarz in Expanding literacies through graphic novels (2006). While providing this creative list about graphic novels such as Hurdles, Addicted to war, Still I rise: A cartoon history of African Americans, The four immigrants manga, etc., Schwarz includes statements intended to legitimize the use of graphic novels, such as, “Hartfiel [a mid-high teacher in Oklahoma] thinks that this playful approach to Shakespeare requires students to solve problems and make decisions about such literary elements as narrative style and character presentation,” (p. 59) and, “the graphic novel offers an engaging medium for asking students to analyze information and persuasion in different
ways,” (p. 61). Such statements are offered in place of empirical evidence and data, and readers, teachers, researchers, etc. are asked to trust these opinions. Anecdotal evidence is, of course, valuable to practitioners; however, it currently forms almost the entirety of research about graphic novels and comic books in the classroom.

While a great many articles encourage the use of graphic novels and comic books in the classroom, offer anecdotal evidence to support their claims, and provide valuable, creative examples of how to use graphic novels, few of them present empirical research data which substantiate claims of improved test scores and higher levels of comprehension. Additionally, articles that do present research data do so in order to rebut negative arguments against graphic novels, not to support positive claims about them. It is, therefore, the purpose of the current research to present empirical, measurable research data which demonstrate that the use of graphic novels leads to greater frequencies of appropriate schema activation, improved comprehension, and higher quiz scores.

**A WORD FROM THE SKEPTICS**

As noted above, I’ll spend a few moments exploring the argument presented by Fredric Wertham, M.D., in his 1954 text *Seduction of the Innocent*, in which he argues that comic books are a major influence on delinquent behavior. His work doesn’t specifically argue against the utilization of comic books and graphic novels in classroom instruction, but rather addresses a general objection to these kinds of texts. The reason
I feel it beneficial to include this section is that most of the issues raised by Wertham (which I will rebut) represent a number of the preconceptions and misconceptions held by many not familiar with comic books and graphic novels and, therefore, stand as roadblocks to the proper utilization of these texts in the classroom.

Fredric Wertham, M.D., was a psychologist working primarily with troubled and delinquent youth in the mid twentieth century. He believed that comic books were the primary cause of much of the juvenile delinquency of the time and felt that comics were a scourge which needed to be cleansed from the earth. He zealously took this task as his own, a decision for which he was criticized, often likened to Don Quixote, tilting at windmills. To Wertham, however, the task was “not Quixotic but Herculean – reminiscent, in fact, of the job of trying to clean up the Augean stables,” (p. 15). For those unfamiliar with the fifth labor of Hercules: the Augean stables housed 1,000 cattle and had not been cleaned for thirty years. This task was intended to humiliate Hercules because of the sheer volume of animal feces with which he would have to deal. Two points can be drawn from Wertham’s metaphor: (1) Wertham views the comic industry as a colossal collection of absolute filth, and (2) he likens himself to a Greek demigod who bests even the craftiest of opponents.

One of the major flaws in Wertham’s argument is that he forces all comic books into two basic categories: (1) animal funnies and (2) crime comics. The crime comics genre was prevalent in the 1940’s and 50’s, and I will concede the point that much of the violence contained therein was too graphic for young readers; however, Wertham
classifies almost every single comic book (except for the ones where cute little bunnies
tell elementary jokes) as a crime comic. An early graphic novel version of *Macbeth* (not
used in this study) was identified as a crime comic book because “the first word balloon
has the words spoken by a young woman (Lady Macbeth): ‘Smear the sleeping servants
with BLOOD!’” (p. 22, Wertham’s parenthetical note and emphasis). Comic book classical
heroes Superman and Wonder Woman, likewise, are identified as crime comic villains:

Superman (with the big S on his uniform – we should, I supposed, be thankful
that it is not an S.S.) needs an endless stream of ever new submen, criminals,
and “foreign-looking” people not only to justify his existence but even to make it
possible.

Superwoman (Wonder Woman) is always a horror type. She is physically very
powerful, tortures men, has her own female following, is the cruel “phallic”
woman. While she is a frightening figure for boys, she is an undesirable ideal for
girls, being the exact opposite of what girls are supposed to want to be. (p. 34)

Wertham claims that Superman and Wonder Woman are crime comic villains
because they are not accurate representations of the kind of heroes children need to
have since regular children cannot grow up to be like the alien or the Amazon.

Wertham, to strengthen his argument against Superman (et al.), attempts to draw a
parallel between the caped crusader and Hitler, saying,

I have often found in [children] a wish for overwhelming physical strength,
domination, power, ruthlessness, emancipation from the morals of the
community. It may show in various half-repressed ways or openly as admiration for these traits. Spontaneously children connect this with crime comic books of the Superman, Batman, Superboy, Wonder Woman type. In the individual case this superman ideology is psychologically most unhygienic. The would-be supermen compensate for some kind of inferiority, real or imagined, by the fantasy of the superior being who is a law unto himself.

In these cases there is an exact parallel to the blunting of sensibilities in the direction of cruelty that has characterized a whole generation of central European youth fed on the Nietzsche-Nazi myth of the exceptional man who is beyond good and evil. (pp. 96-97)

Because the hero is named “Superman”, Wertham connects him to Nietzsche’s theory of the Übermensch (overman or superman), presented partially in Nietzsche’s *Thus Spake Zarathustra*:

_I teach you beyond-man. Man is a something that shall be surpassed. What have ye done to surpass him? All beings hitherto have created something beyond themselves: and are ye going to be the ebb of this great tide and rather revert to the animal than surpass man? What with man is the ape? A joke or a sore shame. Man shall be the same for beyond-man, a joke or a sore shame. Ye have made your way from worm to man, and much within you is still worm. Once ye were apes, even now man is ape in a higher degree than any ape. He who is the wisest among you is but a discord and hybrid of plant and ghost. But do I order_
you to become ghosts or plants? Behold, I teach you *beyond-man!* *Beyond-man* is the significance of earth. Your wit shall say: *beyond-man* shall be the significance of earth. (p. 5)

Very simply put, the brainwashed Nazi superman youth is not what comes to mind when people think of Superman or Batman or Wonder Woman. Wertham discredits his own argument by placing nearly every comic book written under the umbrella of the crime comic.

In addition to his belief that comic books provided false heroes for youths, Wertham also asserts that comic books generally present a skewed reality, a reality in which sexuality is taught in a threatening way:

[Another comic book] was one of the most sexy, specializing in highly accentuated and protruding breasts in practically every illustration. Adolescent boys call these “headlight comics.” This is a very successful way to stimulate boys sexually. In other comic books, other secondary sexual characteristics of women, for example the hips, are played up in the drawing. (p. 39)

Later, after a number of examples, Wertham comes right out with it and makes this claim: “comic books lead the child into temptation to commit delinquencies [e.g., rape] and stimulate him sexually,” (p. 80). This claim, and the broader assumptions upon which it’s founded, as I noted early in my introduction, assumes that readers of comic books and graphic novels are antisocial teens who read comics in the hopes that
they will have some eye-candy to offer. This assumption is not only incorrect but also offensive.

Another of the major flaws which discredits Wertham’s entire argument lies with his methodology. By and large the data used in the text are qualitative findings gathered over a number of years from Wertham’s practice as a psychologist. On the surface this may seem like a perfectly legitimate manner of gathering information; however, this, in fact, calls into question every piece of information presented in Wertham’s book. One of Wertham’s primary jobs was to serve as a forensic psychologist for cases of juvenile delinquency; that is to say, he asserted, before a judge, whether an individual is fit to be free or should be remanded to a juvenile detention center. Also, Wertham had made his stance on and opinion of comic books very public. Several times in Seduction of the Innocent he mentions that colleagues, parents, and patients were aware of his disposition toward comic books. It stands to reason, therefore, that if the key to one’s freedom lies in the hands of someone who hates and despises comic books, one could simply blame comic books for all the wrongs (s)he has ever committed in order to put the key-holder into an agreeable frame of mind. I would argue that many of the children Wertham “treated” simply told him what he wanted to hear to get lesser punishments.

Finally, Wertham does make a few comments about the use of comic books and graphic novels as literature in the classroom which should be addressed; again: not just
as the opinion of one man, but the typified opinion of those who oppose the pedagogical uses of graphic novels and comic books.

Despite the fact that, even as Wertham admits, “a great deal of learning comes in the form of entertainment, and a great deal of entertainment painlessly teaches important things,” (p. 89) on the very same page he claims, “I have found the effect of comic books to be first of all anti-educational. They interfere with education in the larger sense.” He further blames comic books for poor literacy skills stating, “[a girl] had a reading retardation undoubtedly caused by constant reading of comics,” (p. 99). He illuminates his belies with the following anecdote:

A ten-year-old girl from a cultivated and literate home asked me why I thought it was harmful to read Wonder Woman (a crime comic which we have found to be one of the most harmful). She has in her home many good books and I took that as a starting point, explaining to her what good stories and novels are.

“Supposing,” I told her, “you get used to eating sandwiches made with very strong seasonings, with onions and peppers and highly spiced mustard. You will lose your taste for simple bread and butter and for finer food. The same is true of reading strong comic books. If later on you want to read a good novel it may describe how a young boy and girl sit together and watch the rain falling. They talk about themselves and the pages of the book describe what their innermost little thoughts are. This is what is called literature. But you will never be able to
appreciate that if in comic book fashion you expect that at any minute someone
will appear and pitch both of them out of the window.”

As noted above, my own experiences have differed greatly from Wertham’s
“findings”. Comic books and graphic novels were the avenue to my appreciation of
literature, not a roadblock.

Despite his claim that only “pseudo-educators proclaim that comic books are
good for reading,” (p. 71) I believe this study demonstrated the tremendous pedagogical
potential held within the well illustrated pages of comic books and graphic novels.

**SUMMARY**

In this chapter, I made the following philosophical claims: (1) all students can and
should read Shakespeare; (2) engagement, comprehension, and enjoyment work
together in a dynamic way to aid students in achieving overall success (see Figure 1.2);
and (3) graphic novels should be considered media texts. Further, I grounded the
current study in the conceptual belief that graphic novels and comic books are
appropriate texts to meet literacy goals. And I briefly explained four theories which
underpin the study: (1) Mental Discipline Theory, (2) Schema Theory, (3) Psycholinguistic
Theory, and (4) the Automatic Information Processing Model.

I also presented a review of the current literature surrounding the use of graphic
novels in the classroom. The majority of available research is qualitative, so I noted the
gaping quantitative gap in the literature which this study addressed.
Finally, I used Fredric Wertham’s text to address a general opposition to comic books and graphic novels and their pedagogical use, pointing out fallacies and presenting counterarguments.
CHAPTER THREE: METHODOLOGY

INTRODUCTION

In the following chapter, I examine the participants, data sources, issues of validity and reliability, and limitations and delimitations of the study as a whole, in addition to explaining the procedures for the study. Before proceeding, however, here I make a comment on the overall approach to the method of research for this study. It is my intention to make and my hope to be able to make a general argument for the utilization of graphic novels and comic books in the classroom; I believe the results of this study allowed me to add some masonry to the foundation already laid by the anecdotal evidence supporting the classroom use of graphic novels and comic books.

First, I’ll offer a few words about the rationale for the specific text chosen for this study. The variable of interest for this study is the graphic supplement. *The Tragedy of Macbeth: The graphic novel* was chosen for the study. A prime requisite, as I determined, was that the selected text was a work that contained a story already studied in the classes which made up the subject pool, thereby eliminating a possible dilution of the results which might have been caused by the addition of an entirely new text. Asking participant teachers to use a text they’d taught many times before was my way of avoiding this possible pitfall. Some might argue that which text is chosen is irrelevant because the overall process would be the same (i.e., the control group reads the plain text, while the experimental group reads the graphic novel version). For the
most part, I would agree (and I discuss this later when exploring possible avenues of future research); however, another major factor contributed to the decision, as well:

The selection of a play allowed the graphic novel to be utilized with fewer outright objections from possible critics. If this research were to be criticized, or even rejected, I want it to be for the research design or interpretation of the results, not because of the text selection. *The Tragedy of Macbeth: The graphic novel* contains every word of the plain text version. It is neither a water-down nor a modernized version of the play. Students in the experimental group read every word of the play, just as did the members of the control group.

That being said, I’ll offer a brief overview statement of the method of implementation for the study (Specific aspects are examined farther along.): Participant teachers were asked to facilitate independent reading of the play. The teachers were asked to not discuss particular features of the graphic additions, as the teacher may inadvertently provide additional information that members of the control group were not receiving.

**Participants**

Though I believe that the results of the study may have certain implications for specific groups of students (e.g., struggling readers, students who dislike reading, males, etc.), the general population of interest is all high school students. I believe that graphic novels and comic books can benefit a variety of students at every level (e.g., academic,
honors, and AP). Demographic data were collected regarding academic level and gender to determine if there is a significant statistical difference among these groups, in addition to the overall comparison of treatment and control groups.

The site for this study was a high school in the southeastern part of the U.S. with a student population of around 2200 and a staff of approximately 160 teachers. The site was selected because of the diverse population and ease of access for the researcher. The school provides services for students from more than a dozen different countries. The sample assessed with this study consisted of 281 twelfth grade students (N=281), comprising eleven senior English classes. The control group contained 141 students, and 140 students were in the experimental group. The students were of mixed ability, as both AP and detracked English IV classes were included in the study; students in the detracked English classes are either at the honors or academic levels, with those levels evenly mixed in each of the five detracked classes.
Table 3.1. Treatment and Demographic Breakdown of Study Participants

<table>
<thead>
<tr>
<th></th>
<th>ACADEMIC</th>
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<tr>
<td>TOTALS</td>
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</table>

Table 3.1, above, shows a breakdown of the participants included in this study. As high school seniors, participants had had some exposure to the works of Shakespeare, having read at least *The Tragedy of Romeo and Juliet* as freshmen and a handful of his sonnets throughout their high school careers.

Participants were randomly assigned to the control and experimental groups for this study. In each class, participant teachers were asked to distribute the two types of texts by giving the first student a plain text version, the second student a graphic version, and so on.

In addition to randomly assigning students to treatment groups, participant samples were analyzed to determine equivalence. Some students were repeating the
twelfth grade and, therefore, may have been exposed to the play used in this study before. Seven of the control group and five of the experimental group were identified as repeaters. These proportions were compared and returned the following values: $Z = 0.58, p = 0.56$, two-tailed. These statistics led to the conclusion that there is not a significant difference between the percentage of repeating students in the control group and the percentage of repeating students in the experimental group.

Furthermore, weighted grade points earned by participants in their previous English classes were statistically compared using an analysis of variance (ANOVA) procedure. Results of this comparative analysis are presented in Table 3.2. Table 3.3 shows the mean scores for weighted grade points for both groups. An explanation follows.

Table 3.2. ANOVA Results for Previous Grade by Group

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<td>Corr Total</td>
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<td>538.91</td>
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Table 3.3. Weighted Grade Point Averages by Group

<table>
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<tr>
<td>pregrade</td>
<td>Control</td>
<td>141</td>
<td>3.96</td>
<td>1.44</td>
</tr>
<tr>
<td>pregrade</td>
<td>Experimental</td>
<td>140</td>
<td>4.00</td>
<td>1.33</td>
</tr>
</tbody>
</table>
The ANOVA procedure returned an $F_{(1, 279)}$ value of 0.05, $p = 0.83$. As this $p$-value is well above $\alpha (0.05)$, the null hypothesis is retained: there is not a significant difference between the control and experimental samples.

**DATA SOURCES**

For this study on graphic additions to *The Tragedy of Macbeth*, the following data were collected and analyzed: (a) students’ scores on a multiple-choice, reading comprehension test, (b) students’ reflections on engagement, and (c) teachers’ observations. The overall goal was to determine whether or not the use of graphic novels and comic books has a significant impact on reading comprehension scores.

**DEVELOPMENT OF MATERIALS**

One of the first tasks for this research study was to create the assessment tool. I felt that it was important that the assessment focus on the skill of reading comprehension, rather than be a “reading check” test heavily focused on recalling details of the specific text chosen for the study. After some investigation, I discovered that many educators and researchers disagree on just what factors contribute to comprehending what one reads. As explained in Chapter One, I surveyed articles on this topic to determine the factors that contribute to reading comprehension which would be included on the assessment for this study. Once I had identified those factors, I also believed there would be great value in incorporating the guidelines governing the
questions created for the North Carolina English I End of Course (EOC) test. Using the training documents available for test item writers from the North Carolina Department of Public Instruction (Accountability services: test, 2009), I added five areas of focus for the assessment. Table 3.4 illustrates the foci I considered while writing items for the assessment. The assessment itself is included as Appendix 7.2.

Table 3.4. *Macbeth* Test Question Foci

<table>
<thead>
<tr>
<th></th>
<th>Test Element</th>
<th>Origin</th>
<th>Comprehension Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>prior knowledge</td>
<td>def of read. comp.</td>
<td>Content Schema</td>
</tr>
<tr>
<td>2</td>
<td>textual knowledge</td>
<td>def of read. comp.</td>
<td>Content Schema</td>
</tr>
<tr>
<td>3</td>
<td>vocabulary &amp; decoding</td>
<td>def of read. comp.</td>
<td>Vocabulary and Decoding</td>
</tr>
<tr>
<td>4</td>
<td>Meaning of the overall passage</td>
<td>NC English EOC</td>
<td>Content Schema – Textual</td>
</tr>
<tr>
<td>5</td>
<td>Context clues to discern meaning</td>
<td>NC English EOC</td>
<td>Vocabulary and Decoding</td>
</tr>
<tr>
<td>6</td>
<td>Analysis of a part to the whole</td>
<td>NC English EOC</td>
<td>Linguistic Schema</td>
</tr>
<tr>
<td></td>
<td>(impact of stylistic and literary devices on work)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Effect of discrete literary elements (not the</td>
<td>NC English EOC</td>
<td>Linguistic Schema</td>
</tr>
<tr>
<td></td>
<td>whole work)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Aspects of understanding related to the</td>
<td>NC English EOC</td>
<td>Formal Schema</td>
</tr>
<tr>
<td></td>
<td>communication environment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Only two of the four factors (with content schema divided into its two parts) which I identified as contributing to reading comprehension are included on the chart above. As noted earlier, “the student’s intelligence” was omitted from the assessment and the category of “motivation, engagement, and purpose” was addressed once the assessment had been completed by the participants. Students were asked to rank their engagement with the text they’d been given on a five point Likert item, where one (1)
indicated a very low engagement with the text, and five (5) indicated a very high engagement with the text.

Once the assessment had been created, I conducted a split-half reliability test in order to evaluate my assessment tool. First, the odd items were separated from the even items. Then, all items were rescored and compared using a Correlation procedure in SAS, which revealed that $r_{(281)} = 0.75, p < 0.0001$.

Subsequently, the Pearson product-moment correlation coefficient presented above was transformed using the Spearman-Brown prediction formula to account for the size of the actual assessment ($n = 40$ test items). Calculations found that $P^{*}xx' = 0.86$, which exceeds the desired reliability index of 0.70, indicating that all items measure a common, consistent concept.

In addition to the tests explained above, I asked two high school literacy coaches, three English teachers, and a college professor to peruse the assessment watching for two things: (a) whether the questions were biased toward either the plain text or graphic novel versions of the play and (b) whether they believed the test would give an accurate measure of reading comprehension based upon the factors I had identified. All six believed the questions were fair to both versions of the text and did, indeed, appropriately measure reading comprehension.

The final step was to create three versions of the test where the answer choices were rearranged. The order of the questions was not changed as the items on the assessment followed the text chronologically.
PROCEDURES

Participant teachers did not give any instruction on the play before the assessment was given; this was done to avoid any possible influence on the data which may arise from differences in information provided by participant teachers.

During the assessment, students were given a copy of the text (either plain text or graphic) at random, a test packet, and an answer sheet. Students were allowed to use the text while completing the test, as they would have been able to do on an End-of-Course test.

Finally, participant teachers were asked to informally note how much time each group (experimental and control) took to finish the assessment.

VALIDITY ISSUES

Construct Validity

For a study to be valid in terms of construct validity, it must employ instruments which are designed to address the construct being researched.

The overall focus of interest for this study was to determine to what degree the graphic additions offered by the graphic novel version of the play impact students’ reading comprehension. The assessment instrument designed for data gathering was specific to that goal. The test was created after investigating what factors played a role in reading comprehension and was further aligned with the basic objectives guiding the
North Carolina English I End-of-Course test. The main instrument was an objective measure of reading comprehension. The Likert survey item, intended to gather information on the students’ engagement, required input from the students themselves which was not filtered through either the participant teacher or the researcher.

**Internal Validity**

Internal validity is “the trustworthiness of inferences drawn from the data” (Anderson, Herr, & Nihlen, 1994, p. 27) as they apply to the observed sample. Internal validity for this study was addressed by the fact that the claim I made (the general success in reading comprehension garnered from the utilization of graphic novels) is based upon an objective test of reading comprehension, the creation of which was governed not only by various educational research articles, but also by the guidelines of the North Carolina English I End-of-Course test. Participant teachers and independent research evaluators were utilized to reduce potential bias, and member checking was employed to determine whether or not the researcher’s inferences drawn from survey data matched participants’ own conclusions, opinions, and observations.

**External Validity**

External validity is “concerned with how the findings in a study can be generalized to other similar groups” (Honeycutt, 2002, p. 47). The Likert survey item required input from students, so there is a slight possibility that the opinions
represented by that part of the study may not be generalizable; however, since (a) the main part of the study utilized objective data for analysis and (b) represents a large sample (N=281) that includes high school seniors on AP, honors, and average tracks, from a variety of races and ethnicities, the results are likely applicable as a parameter of the student body population.

Democratic Validity

Democratic validity refers to the extent to which the researcher collaborates with and takes into consideration the multiple views and interests of the various stakeholders in the problem that the researcher is examining (Anderson, Herr, & Nihlen, 1994). Member checking and comparison checking were utilized where possible. I ensured democratic validity by providing the student stakeholders an opportunity to express their engagement about the topic being researched using a Likert scale. Additionally, the participant teachers as stakeholders were conferenced with about the interpretation of data from their classes. The objective reading comprehension assessment will, of course, be of interest to all stakeholders, but most importantly to administrators and parents; the objectivity and pre-established guidelines governing the creation of the assessment tool should foster confidence in the results for those groups.
Process Validity

Process validity “refers to the ‘dependability’ and ‘competency’ of the study” (Anderson, Herr, & Nihlen, 1994, p. 31). This type of validity is established by employing a variety of data collection methods. I gathered data from the following sources: (a) students’ scores on a multiple-choice, reading comprehension test, (b) students’ reflections on engagement, and (c) teachers’ observations. Though the majority of the data comes from one source (the reading comprehension test), the forty questions on the test addressed eight different areas which play a part in reading comprehension. I also shared findings, outcomes, and assumptions with other professionals in order to gain feedback and further interpretation.

Reliability Issues

Reliability refers to the criterion concerned with the stability, consistency, and equivalence of the findings and interpretations of the study. It is the extent to which repeated administrations of a measure will provide the same data, or the extent to which a measure administered once, but by a different person, would produce equivalent results. (Honeycutt, 2002)

I believe that eleven English classes allowed a large enough sample size that repeated administrations of the study would yield similar results. The data collection instruments were created in the most objective manner possible.
Furthermore, the study includes students from varied academic levels, interests, races, genders, etc. which would support my earlier claim that repeated administrations would yield similar results.

DELIMITATIONS AND LIMITATIONS OF THE STUDY

A number of potential benefits present themselves through this study and a variety of validity techniques were employed; however, some delimitations were established and some limitations may be at play.

Delimitations

As noted above, the major delimitation of the study was the selection of the text *The Tragedy of Macbeth: The graphic novel*. Briefly, again, the general rationale for that decision was to allow participant teachers to use a text with which they’d had prior experience, in order to avoid the possibility of bias toward the graphic novel as a totally new text. Additionally, this text allowed students in both groups exposure to the whole of Shakespeare’s words; therefore, causing the graphic additions to be the stand-alone variable.

Another delimiter was employed concerning the theoretical base for this study. The Automatic Information Processing model has five major components: (a) visual memory, (b) phonological memory, (c) episodic memory, (d) semantic memory, and (e) attention. For this study, I focused mainly on the last aspect, attention. Certainly, the
model can be explored as a whole, giving deeper attention to all aspects of the model, with future research studies about the use of graphic novels and comic books.

**Limitations**

One of the most significant limitations is that this study may very well have exposed many students to a format with which they were unfamiliar: the graphic novel or comic book. I doubt that any significant alteration to the data or results occurred from this, as many research studies expose participants to new things; however, this is an issue which may warrant investigation with future research. Given a large enough sample, participants could be stratified by level of experience with the format (e.g., “none”, “read some comics when I was younger”, “avid comic reader”, etc.), and data could be analyzed from that perspective.

Students were asked for a response based on a Likert item; there is a possibility that the rankings may have meant different things to different people. For example a three on a scale of one to five may mean “average” for one person; while for another it translates to an “F” (60%) on an educational grading scale.

Furthermore, even though the population was fairly diverse and ranged from AP / honors level to academic level, the sample came from only one grade level. Studies in which other grade levels are included as part of the sample researched could be conducted in the future to determine whether or not the perspectives presented here apply to a larger population.
CHAPTER FOUR: RESULTS

ASSUMPTIONS

The assumptions for the tests performed to analyze the data are discussed in context throughout the chapter, so I present, here, a few brief statements regarding the assumptions governing the data analysis presented below:

(a) Participant samples are independent and were randomly assigned to treatment groups.

(b) There is homogeneity of variance.

(c) Responses are independent and, though there is some difference, comparably distributed.

(d) While the data are not normal, it is only slightly non-normal, and, as Kirk (1995) notes, “the F statistic is quite robust with respect to violation of the normality assumption,” (p. 99).

RESEARCH QUESTION ONE: READING COMPREHENSION

The primary area of interest for this research study was to determine the relationship of the use of comic books / graphic novels to students’ reading comprehension. Before comparative analysis, data were analyzed to determine distribution, identify outliers, examine skew, etc. Table 4.1 offers univariate results for the control and experimental groups.
Table 4.1. Univariate Details of Control (plain text) and Experimental (graphic novel) Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std Dev</th>
<th>Variance</th>
<th>Skew</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>141</td>
<td>50.29</td>
<td>16.80</td>
<td>282.39</td>
<td>-0.27</td>
<td>-0.85</td>
</tr>
<tr>
<td>Experimental</td>
<td>140</td>
<td>60.75</td>
<td>14.50</td>
<td>210.17</td>
<td>-0.75</td>
<td>0.07</td>
</tr>
</tbody>
</table>

Figure 4.1. Distribution Chart for Control Group Reading Comprehension Scores
Figure 4.1 shows the distribution of scores for the control (plain text) group, and Figure 4.2 shows the distribution of scores for the experimental (graphic novel) group. From the information in Table 4.1 and the histograms shown in figures 4.1 and 4.2, one would easily conclude that the data for each group are not normally distributed.

Furthermore, the p-values shown in Table 4.2, which display the results of tests of normality, would cause the null hypothesis (H₀: The data are normally distributed) to be rejected.

Table 4.2. Results of Tests of Normality for Control and Experimental Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Statistic</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Shapiro-Wilk</td>
<td>W = 0.969</td>
<td>0.003</td>
</tr>
<tr>
<td>Control</td>
<td>Kolmogorov-Smirnov</td>
<td>D = 0.095</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Experimental</td>
<td>Shapiro-Wilk</td>
<td>W = 0.945</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Experimental</td>
<td>Kolmogorov-Smirnov</td>
<td>D = 0.120</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>
Both distributions are negatively (or left) skewed, with the control group’s distribution being approximately symmetric (slightly skewed; skew = -0.27), and the experimental group’s distribution being moderately skewed (skew = -0.75). The distribution of the control group’s data is platykurtic (kurtosis = -0.85), while the experimental group’s distribution is slightly leptokurtic (kurtosis = 0.07).

Though the univariate data for both groups are slightly non-normal, the trend shown in both graphs is somewhat typical of what we see in distributions of educational data (i.e., grades). In fact, the ideal distribution to show mastery (short of every student acquiring total mastery) would be highly leptokurtic and highly left-skewed.

In addition to examining distributions, data were also inspected to identify any outliers. A z-score conversion of reading comprehension scores (see Table 4.3) revealed no outliers (z-score values > 3.0 or < -3.0); no entries, therefore, were removed from the data pool.

<table>
<thead>
<tr>
<th>Group</th>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>St. Dev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>zscore</td>
<td>141</td>
<td>-1.13E-16</td>
<td>1.00</td>
<td>-2.22</td>
<td>1.95</td>
</tr>
<tr>
<td>Experimental</td>
<td>zscore</td>
<td>140</td>
<td>-5.71E-17</td>
<td>1.00</td>
<td>-2.60</td>
<td>2.02</td>
</tr>
</tbody>
</table>

Using SAS, data were compared using an analysis of variance (ANOVA) procedure and a T-test procedure. Both tests were performed because Bartlett’s test for homogeneity of variance accompanying the initial ANOVA procedure returned a
$\chi^2(1, N = 281)$ value of 3.02, $p = 0.082$, and Levene’s test returned an $F(1, 279)$ value of 4.05, $p = 0.045$. While Bartlett’s p-value is high enough to keep the null hypothesis ($H_0$: The variances are equal.), it’s uncomfortably close to the $\alpha$ of 0.05, and Levene’s p-value calls for a rejection of the null hypothesis. Conducting a T-test procedure allowed me to look at both pooled (for equal variances) and Satterthwaite (for unequal variances) methods. Tables 4.4 and 4.5 display the results of the T-test procedure, and table 4.6 displays the results of the ANOVA procedure; an explanation follows.

Table 4.4. T-test Statistics for Score by Group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Std. Err</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>0 (control)</td>
<td>141</td>
<td>50.29</td>
<td>16.81</td>
<td>1.42</td>
</tr>
<tr>
<td>Score</td>
<td>1 (experimental)</td>
<td>140</td>
<td>60.75</td>
<td>14.50</td>
<td>1.23</td>
</tr>
<tr>
<td>Score</td>
<td>Diff (1-0)</td>
<td>1</td>
<td>10.46</td>
<td>15.70</td>
<td>1.87</td>
</tr>
</tbody>
</table>

Table 4.5. T-test Results for Score by Group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Method</th>
<th>Variances</th>
<th>df</th>
<th>t-Value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>Pooled</td>
<td>Equal</td>
<td>279</td>
<td>-5.58</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Score</td>
<td>Satterthwaite</td>
<td>Unequal</td>
<td>274</td>
<td>-5.59</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Table 4.6. ANOVA Results for Score by Group

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F-Value</th>
<th>p-value</th>
<th>Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>1</td>
<td>7684.92</td>
<td>7684.92</td>
<td>31.19</td>
<td>&lt;0.0001</td>
<td>0.67</td>
</tr>
<tr>
<td>Error</td>
<td>279</td>
<td>68749.33</td>
<td>246.41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr Total</td>
<td>280</td>
<td>76434.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The T-test procedure returned an $F_{(139)}$ value of $1.34$, $p = 0.082$ for the equality of variance test, which would indicate that variances are equal; therefore, the results for the pooled method are used: $t_{(279)} = -5.58$, $p < 0.0001$. Regardless of which method is used, however, t-values are nearly the same and p-values are both $< 0.0001$. Likewise, the ANOVA procedure returned an $F_{(1, 279)}$ value of $31.19$, $p < 0.0001$.

As these p-values are well below $\alpha$ (0.05), I rejected the null hypothesis ($H_0$: There is no difference between group means.) and concluded that there is a highly significant difference between the mean score of the control (plain text) group ($\bar{x} = 50.29$) and the mean score of the experimental (graphic novel) group ($\bar{x} = 60.75$).

Furthermore, from the ANOVA output, I was able to calculate that Cohen’s $d = 0.67$, indicating a near-large effect size for the use of graphic novels. Using guidelines developed by Cohen (1988), I determined that the value presented above indicates that the median of the experimental group lies around the 76th percentile of the control group (i.e., a median student from the experimental group would have scored higher than about 76 percent of the control group). Furthermore, the above $d$-value indicates there is approximately 43 percent of nonoverlap between the distributions.

Data presented in the preceding two paragraphs are also displayed graphically in Figure 4.3, which presents a boxplot of the distribution data for both groups. The line located within the box represents the group median (50th percentile), and one can see
that the median line for the experimental group (group 1) lies about 76 percent of the way up the control group’s (group 0) distribution. Additionally, the 43 percent of nonoverlap is easily identifiable at the top portions of the experimental group’s box and top whisker.

![Box plot](image)

**Figure 4.3.** Distribution of Score by Group (0 = control; 1 = experimental)

Simply put: the *Macbeth* graphic novel had a large impact on students in the treatment group, leading to significantly higher reading comprehension scores.

One possible objection which critics of graphic novels may have of the data presented above is that the mean score for the experimental group is a failing score on
a 7-point grading scale. (It is not a failing score on the 10-point grading scale.) While this is true, only 13.48 percent of students earned a passing score in the control group (36 percent on a 10-point scale); whereas, 37.14 percent of students in the experimental group earned a passing score (62 percent on a 10-point scale) – that is, almost three times more students earned a passing score when using the graphic novel instead of the plain text version of the play.

RESEARCH QUESTION TWO: ENGAGEMENT

Following the completion of the assessment, participants were asked to rank their level of engagement with the text they used. These ratings were compared to determine if a significant difference exists between ratings for treatment groups (an ANOVA procedure) and to determine whether a correlation exists between one’s engagement and the reading comprehension score (a Correlation procedure). Table 4.15 displays the ANOVA results for group engagement; table 4.16 shows the engagement means for each group.

Table 4.7. ANOVA Results for Score by Group

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F-Value</th>
<th>p-value</th>
<th>Cohen’s d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>1</td>
<td>132.35</td>
<td>132.35</td>
<td>135.72</td>
<td>&lt;0.0001</td>
<td>1.39</td>
</tr>
<tr>
<td>Error</td>
<td>279</td>
<td>272.07</td>
<td>0.98</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr Total</td>
<td>280</td>
<td>404.42</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.8. Engagement by Group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>N</th>
<th>Mean (out of 5)</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engagement</td>
<td>Control</td>
<td>141</td>
<td>2.16</td>
<td>0.97</td>
</tr>
<tr>
<td>Engagement</td>
<td>Experimental</td>
<td>140</td>
<td>3.54</td>
<td>1.01</td>
</tr>
</tbody>
</table>

As the ANOVA procedure returned an $F_{(1, 279)}$ value of 135.72, $p < 0.0001$, I rejected the null hypothesis ($H_0$: There is no difference between group means.) and concluded that the experimental (graphic novel) group was significantly more engaged than the control (plain text) group. Furthermore, from the ANOVA output, I was able to calculate that Cohen’s $d = 1.39$, indicating a very large effect size.

Furthermore, running a Correlation procedure for engagement and score in SAS revealed that $r_{(281)} = 0.44$, $p < 0.0001$, indicating a strong, positive relationship where there is less than a 0.01% chance that there is not a correlation between engagement and score. The coefficient of determination is $r^2 = 0.19$, which is to say that 19 percent of either variable is shared with the other variable (i.e., Nineteen percent of the variance is accounted for by the correlation between engagement and score.).

RESEARCH QUESTION THREE: GENDER AND ACADEMIC LEVEL

A secondary area of interest for this research study revolved around determining whether there exists a difference for males and females regarding the Primary Research Question; likewise, the secondary area of interest also investigated whether there is a
significant difference in reading comprehension scores for students of different academic levels (e.g., AP, honors, academic).

Data were compared using factorial ANOVA procedures as the dependent variable (score) is continuous, while the other variables of interest here (group, gender, and academic level) are all categorical (two, two, and three categories, respectively).

Some critics of comic books and graphic novels believe that graphic texts are geared more toward males and would not be of much benefit to females. The purpose of this section of analysis is to determine whether there is a significant interaction between a participant’s treatment group and his/her gender.

Table 4.7 is the 2x2 factorial ANOVA table for testing for interaction between treatment group and gender; each cell displays the number of participants (N), as well as the mean ($\bar{x}$) and standard deviation ($\sigma_\bar{x}$) for the participants of that cell.

Table 4.8 displays the results of the factorial ANOVA test for interaction between the variables group and gender. Further, as cell sizes are unequal ($N_{11} = 76$; $N_{12} = 65$; $N_{21} = 70$; and $N_{22} = 70$), the Type III Sums of Squares are presented in Table 4.9. An explanation follows.
### Table 4.9. Factorial ANOVA Table for Group and Gender

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Gender</th>
<th>N</th>
<th>( \bar{x} )</th>
<th>( \sigma_{\bar{x}} )</th>
<th>N</th>
<th>( \bar{x} )</th>
<th>( \sigma_{\bar{x}} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Female</td>
<td>76</td>
<td>54.37</td>
<td>15.65</td>
<td>65</td>
<td>45.52</td>
<td>16.97</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>65</td>
<td>50.29</td>
<td>16.80</td>
<td>65</td>
<td>45.52</td>
<td>16.97</td>
</tr>
<tr>
<td>Experimental</td>
<td>Female</td>
<td>70</td>
<td>62.13</td>
<td>12.93</td>
<td>70</td>
<td>60.75</td>
<td>14.50</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>70</td>
<td>59.37</td>
<td>15.88</td>
<td>70</td>
<td>60.75</td>
<td>14.50</td>
</tr>
<tr>
<td></td>
<td>Totals</td>
<td>146</td>
<td>58.09</td>
<td>14.88</td>
<td>140</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 4.10. Factorial ANOVA Results for Score by Group & Gender

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>3</td>
<td>10692.16</td>
<td>3564.05</td>
<td>15.02</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Error</td>
<td>277</td>
<td>65742.09</td>
<td>237.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr Total</td>
<td>280</td>
<td>76434.25</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 4.11. Type III Sums of Squares with \( \omega^2 \) values for Score by Group & Gender

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Type III SS</th>
<th>F-value</th>
<th>p-value</th>
<th>( \omega^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>1</td>
<td>8175.37</td>
<td>34.45</td>
<td>&lt;0.0001</td>
<td>0.104</td>
</tr>
<tr>
<td>Gender</td>
<td>1</td>
<td>2357.00</td>
<td>9.93</td>
<td>0.0018</td>
<td>0.028</td>
</tr>
<tr>
<td>Group*Gender</td>
<td>1</td>
<td>648.99</td>
<td>2.73</td>
<td>0.0993</td>
<td>0.005</td>
</tr>
</tbody>
</table>
The interaction between group and gender, analyzed first, does not suggest a significant difference in group means given that \( F(1, 277) = 2.73, p = 0.0993 \). Basically, this means that the use of a graphic novel did not help males any more or any less than it helped females.

Since the interaction term is not significant, main effects were examined for significance. The information for the “group” effect from table 4.9 \( F(1, 277) = 34.45, p < 0.0001 \) and \( \omega^2 = 0.104 \) supports the conclusion made in the earlier section: students who used the graphic novel version of the play significantly outperformed those who used the plain text version.

When the treatment group variable is controlled, gender is revealed to be a significant main effect: \( F(1, 277) = 9.93, p = 0.0018 \). The p-value of 0.0018 would lead us to reject the null hypothesis \( H_0: \) There is no difference between means for males and females.\) and conclude that females scored significantly higher than males. Table 4.10 shows the mean scores for males and females.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gender</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>Male</td>
<td>135</td>
<td>52.70</td>
<td>17.77</td>
</tr>
<tr>
<td>Score</td>
<td>Female</td>
<td>146</td>
<td>58.09</td>
<td>14.88</td>
</tr>
</tbody>
</table>

Though the data reveal a significant difference, the effect size (determined by calculating \( \omega^2 \)) of gender is relatively small given that \( \omega^2 = 0.028 \). This is not a surprising finding as various educators and researchers have offered evidence that females
generally outperform males in language related areas (e.g., Gur, Turetsky, Matsui, Yan, Bilker, Hughett & Gur, 1999; Halpern, 1997). While this is an interesting bit of information, it is not terribly important so far as this study is concerned; I report it to explain some of the variance in reading comprehension scores.

In addition to gender, data were analyzed to determine whether there is a significant interaction between a participant’s treatment group and his/her academic level.

Table 4.11 is the 2x3 factorial ANOVA table for testing for interaction between treatment group and academic level; each cell displays the number of participants (N), as well as the mean (\( \bar{x} \)) and standard deviation (\( \sigma_x \)) for the participants of that cell.

Table 4.12 displays the results of the factorial ANOVA test for interaction between the variables group and academic level. Further, as cell sizes are unequal \( (N_{11} = 34; N_{12} = 29; N_{13} = 78; N_{21} = 28; N_{22} = 37; \text{ and } N_{23} = 75) \), the Type III Sums of Squares are presented in Table 4.13. An explanation follows.
Table 4.13. Factorial ANOVA Table for *Group* and *Level*

<table>
<thead>
<tr>
<th>Treatment Group</th>
<th>Level</th>
<th>N</th>
<th>( \bar{x} )</th>
<th>( \sigma_x )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>Academic</td>
<td>34</td>
<td>36.00</td>
<td>14.75</td>
</tr>
<tr>
<td></td>
<td>Honors</td>
<td>29</td>
<td>44.17</td>
<td>15.10</td>
</tr>
<tr>
<td></td>
<td>AP</td>
<td>78</td>
<td>58.79</td>
<td>12.34</td>
</tr>
<tr>
<td></td>
<td>Totals</td>
<td>141</td>
<td>50.29</td>
<td>16.80</td>
</tr>
<tr>
<td>Experimental</td>
<td>Academic</td>
<td>28</td>
<td>46.57</td>
<td>16.27</td>
</tr>
<tr>
<td></td>
<td>Honors</td>
<td>37</td>
<td>57.62</td>
<td>13.76</td>
</tr>
<tr>
<td></td>
<td>AP</td>
<td>75</td>
<td>67.59</td>
<td>8.82</td>
</tr>
<tr>
<td></td>
<td>Totals</td>
<td>140</td>
<td>60.75</td>
<td>14.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>62</td>
<td>40.77</td>
<td>16.22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>66</td>
<td>51.71</td>
<td>15.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>153</td>
<td>63.10</td>
<td>11.75</td>
</tr>
</tbody>
</table>

Table 4.14. Factorial ANOVA Results for *Score* by *Group* & *Level*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>5</td>
<td>30851.65</td>
<td>6170.33</td>
<td>37.23</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Error</td>
<td>275</td>
<td>45582.60</td>
<td>165.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corr Total</td>
<td>280</td>
<td>76434.25</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.15. Type III Sums of Squares with \( \omega^2 \) values for *Score* by *Group* & *Level*

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>Type III SS</th>
<th>MS</th>
<th>F-value</th>
<th>p-value</th>
<th>( \omega^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>1</td>
<td>7046.65</td>
<td>7046.65</td>
<td>42.51</td>
<td>&lt;0.0001</td>
<td>0.104</td>
</tr>
<tr>
<td>Level</td>
<td>2</td>
<td>22833.46</td>
<td>11416.73</td>
<td>68.88</td>
<td>&lt;0.0001</td>
<td>0.294</td>
</tr>
<tr>
<td>Group*Level</td>
<td>2</td>
<td>249.26</td>
<td>124.63</td>
<td>0.75</td>
<td>0.4724</td>
<td>0**</td>
</tr>
</tbody>
</table>

**Rounded to 0; actual value = -0.0011.
The interaction between group and academic level does not show a significant difference in group means given that $F_{(1, 275)} = 0.75, p = 0.4724$. From this we would conclude that the use of a graphic novel aids students at all levels comparably with regard to reading comprehension; that is, graphic novels do not help academic level students any more or any less than they help AP students, and vice versa.

Since the interaction term is not significant, main effects were examined for significance. Discussing the effect of treatment group would be redundant at this point.

When the treatment group variable is controlled, academic level is revealed to be a significant main effect: $F_{(1, 275)} = 68.88, p < 0.0001$. The $p$-value of $< 0.0001$ would lead us to reject the null hypothesis ($H_0$: There is no difference between means for different academic levels.) and conclude that the academic level of students plays a significant role in reading comprehension. Table 4.14 shows the mean scores for academic, honors, and AP levels.

**Table 4.16. Reading Comprehension Scores by Academic Level**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Level</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>Academic</td>
<td>62</td>
<td>40.77</td>
<td>16.22</td>
</tr>
<tr>
<td>Score</td>
<td>Honors</td>
<td>66</td>
<td>51.71</td>
<td>15.76</td>
</tr>
<tr>
<td>Score</td>
<td>AP</td>
<td>153</td>
<td>63.10</td>
<td>11.75</td>
</tr>
</tbody>
</table>

Additionally, the effect size of academic level is very large: $\omega^2 = 0.294$. This conclusion, as with gender, is not terribly surprising. One of the factors contributing to reading comprehension (as identified for the purposes of this study) is a student’s
intelligence. I do not mean to imply that universally all AP students are more intelligent than all honors students, nor are all honors students more intelligent than all academic students. There are myriad factors which influence a student’s decision to take a particular level of a class: viz. intelligence, motivation, parents’ expectations, schedule conflicts, friends’ decisions, college requirements, the teacher of the course; however, the academic level of one’s coursework could generally be considered a fair measure of one’s intelligence.

SUMMARY OF FINDINGS

In this chapter, I presented, analyzed, and interpreted the data gathered for this study. The implications of these results are discussed in the following chapter. Here, I present a list of the abridged conclusions detailed in this chapter:

- Students using the graphic novel version of the play scored significantly higher on a multiple-choice reading comprehension test than students who used a plain text version, with a near-large effect size.
- Student using the graphic novel version of the play were significantly more engaged than were students using the traditional text version.
- A strong, positive correlation exists between one’s engagement and the reading comprehension score.
- Data revealed that there is not a significant interaction between the use of a graphic novel and one’s gender.
• Data revealed that there is not a significant interaction between the use of a graphic novel and one’s academic level.

• Treatment group (i.e., the use of a graphic novel version), gender, and academic level are main effects for determining performance on a multiple-choice reading comprehension test, though the effect size for gender is small.
CHAPTER FIVE: DISCUSSION AND CONCLUSION

IMPACT ON READING COMPREHENSION

This study revealed a significant difference on tests of reading comprehension, with students who read the graphic form of the play *The Tragedy of Macbeth* outperforming the students who read the play in traditional format. I believe this is due to influence of graphic novels on the factors affecting reading comprehension, such as schema activation (i.e., activation of prior knowledge), images and textual details, and the understanding and decoding of vocabulary.

I am keenly interested in the concept of appropriate schema activation; in fact, this idea was one of the main impetuses for embarking upon this study. For the most part, when people discuss schema, they talk about acquiring knowledge, storing it and filing it. The idea of appropriately sorting through the information and recalling a certain aspect of knowledge receives much less attention. Consider, for example, terms like “witch” or “monster” which may call very different images forward for different people.

Suppose that a third-grader has been given an assignment to read a newspaper article and write a response to it. This student randomly selects an article in which the author has used the term “monster” to describe a man who killed two people while robbing a convenience store. Heretofore, most of the child’s exposure to the term “monster” has dealt with the sort that lurks under children’s beds and in their closets. He has heard his parents use the term to describe people (normal humans) who have
done terrible things, and they have explained their use of the word to him; however, his mind naturally leaps to the tentacled, bug-eyed creatures of fantasy when reading the article. The boy composes the homework assignment about the reading, detailing the slime creature’s terrible exploits. Luckily, just as he is about to hop out of the car on Monday morning, his father asks about his homework and narrowly saves him from embarrassment by explaining the writer’s use of the term “monster.”

A student’s comprehension can be greatly stifled if (s)he reads half of a novel before realizing that (s)he’s had the wrong image in his/her head the whole time based on an ambiguous term or sketchy scenario in the novel’s exposition.

Another example regarding appropriate schema activation, central to understanding Macbeth, is the term “witch”. During the sixteenth and seventeenth centuries, witches were regarded with much more revulsion and hatred than they are today (see Appendix 7.3 for a list of descriptions of witches from sixteenth century texts). Elizabethan citizenry who considered witches slaves of the devil bent on the destruction of the Christian church would never have imagined a future where witches were thought of as anything but a horrid scourge upon the earth; the past century, however, has brought myriad, new characterizations of witches and witchcraft, which ignores, and, at times, outright contradicts the Renaissance view.

Most are familiar with L. Frank Baum’s Wicked Witch of the West, who tormented Dorothy and her little dog, too, and her dreadful sister of the East, whose death brought on uproarious cheers from the Munchkins of Munchkin Country.
Opinions of these two ladies certainly fall in with early seventeenth century views; however, other characters in Baum’s novel directly contradict this view: Glinda, the Good Witch of the South; The Good Witch of the North; and, even, the *Wonderful* wizard himself.

The twentieth century also saw the evolution of Wicca, a Neopagan religion and modern form of witchcraft. While it is certainly true that some consider Wicca a form of Satanism, it is, to many, a legitimate religion, and a number of legal rulings have supported this assertion, including *Dettmer v. Landon* in 1985 in which the court held that Wicca is a religion; this is certainly a far cry from the opinion of Renaissance England’s leadership.

Though it deals with the impact of *The Twilight Series* on vampires, and not witches, Bill Amend’s Halloween Foxtrot strip (2009) (Figure 5.1) exemplifies the impact that pop culture tales like *Harry Potter and the Sorcerer’s Stone* (et al.) have had on the general perception of witches.
Often classroom teachers are concerned with students having access to particular schema when introducing a new, or particularly difficult, text. With so many varied influences, activating the appropriate schema can be a tricky task. This becomes a concern for educators because, as Davidson-Shvers and Rasmussen (2006) note, “prior knowledge of content is probably the strongest factor for predicting success in learning,” (p. 96). Graphic novels and comic books immediately address this concern. The very moment that a reader opens the first page, (s)he is met with images which allude to a specific characterization of witches. Figure 5.2 shows the witches as they are presented on the first page of the Macbeth graphic novel:

Figure 5.2. Opening Images of the Witches from Macbeth

Another factor of reading comprehension addressed by the graphic novel is that of textual details (i.e., textual content schema). Some details, while incredibly important, are only very briefly presented. For example, buried in the twenty-nine line monologue Macbeth delivers as he approaches Duncan’s bedchamber with assassination on his mind are two lines which indicate that Macbeth, consumed with guilt over the regicide he has yet to commit, is actually hallucinating the dagger that he sees in the passageway. In the first line and a half of the two lines, Macbeth asks the question, “… or art thou but / A dagger of the mind, a false creation...” (II.i.37-38) and, in the last half, makes the statement, “There's no such thing,” (II.i.47). The remaining twenty-seven other lines do not indicate whether the dagger is a hallucination or not. If a student, faced with a particularly lengthy selection from a Shakespeare play, decided to skim over it, then two crucial lines, such as the ones indicated here, may be easily
missed. In the graphic novel, however, this detail is nearly impossible to miss, as this dagger of the mind is shown as a blue, spectral, floating dagger (see Figure 5.3).

![Figure 5.3. Macbeth’s Imaginary Dagger](image)

The graphic novel version of the play, in my opinion, adds much to experience of reading a Shakespeare play, while taking little, if anything at all, away. Students are given a much fuller experience of the play than a plain text version would allow. Some may argue that the graphic novel version of a text removes the imagination aspect of reading; however, we must keep in mind that a play was meant to be seen, not read.

Another factor of reading comprehension aided by graphic novels is vocabulary / decoding. Generally, with plain texts the context clues offered to students only come in the form of other words. With comic books and graphic novels, students
not only have other text from which to draw clues, but also a page full of images. An example from the play comes when Macbeth revisits the witches and they reveal to him three apparitions who offer him three warnings/prophecies. Macbeth asks of the third apparition, “What is this / ...that wears upon his baby brow the round / and top of sovereignty?” (IV.i.108-111). In the past, students have sometimes asked me what “the round and top of sovereignty” is. In the graphic novel, they can easily see the crown sitting upon the apparition’s brow for themselves (see Figure 5.4).

![Figure 5.4. The Round and Top of Sovereignty](image)

It should be noted that, just like any other text, comic books and graphic novels should be evaluated for their pedagogical benefit before being used in the classroom. Once a teacher has found graphic texts which will aid in learning, though, they should be incorporated into the class’ reading list. Graphic novels engage readers and aid in accessing and organizing content schema. Furthermore, they are a wonderful place to begin teaching students how to evaluate media texts, in general. The first scene of the
play used for this study in both the graphic and plain-text formats has been included as Appendix 7.5.

Many media specialist have placed graphic novels in school libraries because of the engagement they offer to adolescent readers. However, the results presented above, focusing on reading comprehension scores, should encourage teachers, administrators, and parents to embrace comic books and graphic novels as valuable pedagogical tools and place them in classrooms and on curricula.

IMPACT ON AND OF ENGAGEMENT

This study revealed significant differences in engagement between groups reading two forms of the play. Further, the more engaged students scored significantly higher on reading comprehension, demonstrating that a correlation exists between the engagement graphic novels and comic books offer and reading comprehension scores obtained from reading them. These are not unexpected findings. My teaching experiences with graphic novels and much of the information currently available supporting the use of graphic novels in the classroom speaks to the engagement they offer. The results for the engagement aspect of this study offer a hat tip to the qualitative research already available, reinforcing the claims other authors and researchers have made.

One of my favorite units to teach is an independent reading unit. While it is incredibly laborious for me as I have to design materials that can accommodate any text,
as well as familiarize myself (slightly) with all of the books my students have chosen, it is a wonderful thing in an English class to have so many students incredibly engaged in what they’re reading. On more than one occasion, a student has said to me in response to the unit, “Man, this is the first thing I’ve actually read in high school and didn’t just fake.”

If students don’t read a text, they can’t recall information or comprehend what they read or explore deeper thematic issues presented by the text. Graphic novels and comic books encourage students to read because they are engaging. If nothing else in this entire study supported the use of graphic novels, that fact still exists and has been argued again and again by teachers, researchers, librarians, parents, and students.

THE ROLES OF GENDER AND ACADEMIC LEVEL

This research found no difference by gender or academic level in performance on reading comprehension tests regarding the use of a graphic text versus a plain text. While some may believe that the use of a graphic text is geared more toward one particular kind of student, the research suggests that graphic novels will benefit students of all academic levels and both genders.

Throughout the research process, I took every opportunity to discuss my research with anyone who would listen, and one of the questions I encountered fairly frequently was grounded in the idea that graphic novels would aid some students more so than others, that males or academic level students, for example, would benefit more
from a graphic novel than, say, females or AP students. People would say something along the lines of, “I’m pretty sure boys like comic books more than girls do, so wouldn’t using a graphic novel help boys way more than girls?”

This is certainly an understandable assumption. I even found myself quite surprised when, a few weeks ago I was involved in a conversation with a colleague, an older female teacher, about my study and the benefits I believe graphic novels and comic books offer, and she told me that she had avidly read comic books as a teenager. Whether the supposition that males or struggling readers are more drawn to graphic texts is true or not, this study demonstrated that students in general, regardless of gender or academic level, found an equivalent benefit from the use of graphic novels.

In the research literature, females commonly outperform males on reading comprehension tests (e.g., Gur, Turetsky, Matsui, Yan, Bilker, Hughett & Gur, 1999; Halpern, 1997). While this study demonstrated that there is not a significant difference in the assistance graphic novels have to offer males and females, the trend presented in research literature asserting that females earn higher scores on tests of reading comprehension was confirmed.

An interesting point to note, however, is that once the use of a graphic text and academic level are controlled, gender, while showing significantly different averages, proves to have a small effect size. One could then argue that as teachers identify and appropriately address various factors which contribute to reading comprehension (e.g.,
engagement), the gap in reading comprehension scores between genders may begin to close.

Additionally, this study sought to determine if an interaction between the use of a graphic novel and one’s academic level exists. As noted in the previous chapter, there is no interaction; however, when other factors are controlled, academic level is demonstrated to be a main effect with a large effect size. This is not necessarily a surprising find; one would naturally expects students at the AP level to earn higher scores than their academic level counterparts, whatever the reason may be—intelligence, motivation, expectations, etc.

Though academic level is a strong main effect, teachers should in no way be discouraged from utilizing graphic novels and comic books at all levels as the data has demonstrated that, though they may not be able to close the gap between AP and academic students, they do significantly aid students at all levels in reading comprehension.

Should a teacher decide to incorporate graphic novels into his/her classroom, some thought needs to be given to the appeal a specific graphic text has for various students. Just like with text-only works, graphic novels and comic books tell different stories, fall into different genres, have different things to offer disparate students, etc.

There is nothing inherent in a graphic novel or comic book that makes it more appealing to one person or another (besides, of course, images). They run the gamut of genres from Kirkman and Moore’s *The Walking Dead* (2003), a story of the fall-out from
a zombie apocalypse, to Gulledge’s *Page by Paige* (2011), a reflective story of a girl’s new life in the big city. Additionally, the percentage of the story told by images varies widely. Some graphic novels and comic books are told entirely through images, while others contain barely enough pictures to take them out of the illustrated novel category.

Graphic novels and comic books have much to offer to a variety of different people; the boost in reading comprehension makes them something to be explored for both genders and all academic levels.

**Recommendations for Future Research**

*Other Genres*

The genre of the text chosen for this study naturally lends itself to translation into a graphic novel, as the vast majority of the text is spoken by the characters, while most of the exposition and description is to be inferred.

One possible avenue for future research would be a comparative analysis of plain text and graphic novel versions of other genres (e.g., novels or short stories). With other genres, the artist would actually be replacing written words with images. Selecting a text from a different genre would allow two main issues to be addressed: (a) the researcher could compare the results of the current study to the new study to determine whether similar results apply across genres, and (b) students would be given the opportunity to divergently analyze graphic texts and the choices that artists make when depicting another’s words.
Different Grade Levels

For this study, only high school seniors were included as part of the sample. In future studies, students from all grade levels (even adults) could be included as part of the sample. The results could then be comparatively analyzed to determine if there is an interaction between the use of a graphic novel and grade level. A possible research question may be: do graphic novels help elementary school aged readers significantly more than high school aged readers? Further, if the researcher were to find that students using graphic novels significantly outperformed those using plain text version on tests of reading comprehension at all grade levels, a model may be developed where the relationship is measured at all ages to determine the point of greatest impact.

Such a study could also turn into a longitudinal study wherein elementary aged students were assessed using a similar design to that explain in this dissertation and then assessed again, the same way, once they entered high school. The results could be analyzed to investigate either the staying power of graphic novels and/or the sustained impact of using graphic novels at early ages.

Creating Stratified Samples

This research study was not concerned with any previous experience participants may have had with comic books or graphic novels. While the same basic principles of organization apply (left to right; top to bottom), there are certain format issues one
must learn to navigate before fully engaging with a graphic text. This could become part of the demographic data for participants in a future study.

Participants would be stratified into varying groups based upon their previous experience with comic books and graphic novels. For example, the groups may be divided in terms of participants who “have never read a comic book or graphic novel”, “occasionally read comics and graphic novels”, or “avidly read comic book and graphic novels”.

Results for this study could be analyzed to determine whether there is a significant difference in reading comprehension scores for those who often read comics versus those who are unfamiliar with the format.

**Multiple Intelligences**

Earlier, I joked that it would be nice to be able to claim that reading comic books makes a person smarter. While that is, of course, a joke, it would be interesting to investigate the use of graphic novels and comic books using Gardner’s (1983) theory of multiple intelligences as a theoretical underpinning.

In such a study, the researcher would devise a way to measure a participant’s “total intelligence”. This is a term I’m just tossing out, but the idea behind it would be a combination of measures of various intelligences (e.g., linguistic, kinesthetic, visual, etc.) at a given time, or during a given activity. These “total intelligence” measures for
various activities (one of which would, of course, be reading a comic book or graphic novel) would be compared to determine whether a significant difference exists.

*Disaggregating the Data*

For the purpose of this study four factors were identified as being contributors to reading comprehension: (a) content schema; (b) engagement, motivation, and purpose; (c) the reader’s intelligence; and (d) vocabulary and decoding. Content schema was further divided into two parts: (a) prior knowledge content schema and (b) textual content schema. These factors were identified in order to create the assessment tool used in this study. The results of the reading comprehension assessment were presented in the aggregate, however.

Another possibility for future research would entail not a change in research design, but rather an alteration of data analysis procedures. Each question on the assessment tool could be identified by which reading comprehension factor it addresses. Results could then be comparatively analyzed to determine if graphic novels aid in reading comprehension for a specific reason (e.g., only because they aid in activating prior knowledge) or if they aid in reading comprehension holistically (i.e., graphic novels significantly support all factors contributing to reading comprehension).
REFERENCES


Dettmer v. Landon, 799 F. 2d 929 (4th Cir. 1986).


APPENDICES
Appendix 7.1
I struggled for a time with attempting to classify this study as either a case study or a phenomenological study. In the case of the former, I am evaluating a single text from the perspective of English teachers, thus making it a case; however, in the case of the latter, I would be investigating the shared experience of the phenomenon of reading this specific text. I decided that it would be more fitting to consider this study a case study mainly because I had asked the teachers to evaluate the text, so I felt that the action lacked an organic foundation which I would hope to establish in a phenomenological study.

I am using the graphic novel version of *Macbeth* as the foundation for my dissertation research, so I thought that it would be valuable to determine whether or not English teachers actually considered it a legitimate presentation of the text, instead of just presenting my own opinion.

Five high school English teachers were given a copy of the graphic novel and asked to read it from the perspective of a teacher (as opposed to just a pleasure reader). After about two weeks, I interviewed each subject separately.

In order to properly evaluate this text from a teacher’s perspective, I thought that it was most beneficial to select English teachers for the study as they were the ones
most apt to teach it. The following teachers were included in the study: (1) KM, an English teacher and reading specialist who has taught for about ten years; (2) PH, a senior English teacher with about four years of teaching experience; (3) JP, an AP English teacher with almost twenty years of teaching experience at both middle and high school levels; (4) JB, an English teacher with three years of experience; and (5) LK, an AP English teacher with seventeen years of experience, who has served as the English department chair at her school for six years.

KM’s experience with the play has been that she had read the play several times before becoming a teacher (in high school and in college), has taught it numerous times each year during her career, and has seen various stage productions and films. Despite the fact that her husband is an avid comic reader, she has had little experience with comic books and graphic novels; this was the first graphic novel that she’s read in its entirety.

PH’s experience with the play has been that he had read the play several times before teaching it, has taught it several times a year each school year, and has seen several film adaptations. He is not a comic book and graphic novel reader, but has taught Persepolis, a graphic novel, twice.

JP’s experience with the play has been that she had read the play many times before becoming a teacher, has taught the play every year that she has had a senior English class (about half of her career), and has seen many stage and film productions of
the play. Like the others, she has had very little experience with or exposure to comic books and graphic novels.

JB’s experience with the play has been that she’s read it numerous times throughout high school and college, has taught it five times, and has seen one stage production and one film adaptation of the play. She has had very little experience with graphic novels and comic books.

LK’s experience with the play has been that she’s read it three times, taught it only for two years (because she primarily teaches juniors), and seen two film adaptations of the play. Like KM, her husband is an avid comic reader, but she has had little experience with comic books and graphic novels herself.

The reasons that I’m including the preceding paragraphs are these: (1) I want to demonstrate that there is a range of experience in the number of times that these teachers have taught the play; and (2) these teachers aren’t necessarily all gung-ho about comic books (as I might be considered to be), so they may give a less biased evaluation than if I simply offered my own views.

DATA COLLECTION AND ANALYSIS

Data were collected from each participant through individual interviews which lasted between 21 and 38 minutes. For the interviews, I followed a general outline, attempting to allow the interviewee leeway at the same time. The basic outline for the interview was thus:
1. What has been your experience with the play as a reader and as a teacher?

2. What has been your experience with comic books and graphic novels?

3. Are the characters presented graphically as you have imagined them to be as a reader and teacher?

4. Was the language of the graphic novel true to Shakespeare’s text?

5. Did the graphic presentation (both art and layout) enhance your vision of the plot, fall in line with your vision of the plot, or contrast your vision of the plot?

6. Does the graphic novel do the themes of the play justice; that is, would the images help or hinder your explanations to students?

7. What is your honest, overall opinion of the graphic novel?

Data were gathered from the interviews and were organized by their fitness as responses to the Research Questions posed in this study. Comments which did not necessarily fit as an answer to one of the Research Questions were culled for commonalities and are included at the end of the findings section.

VALIDITY AND RELIABILITY

For a study to be valid in terms of construct validity, it must employ instruments which are designed to address the construct being researched. The study was concerned with teachers’ reactions to the graphic novel version of Macbeth, so questions were asked about their reactions to the material.
Internal validity is “the trustworthiness of inferences drawn from the data” (Anderson, Herr, & Nihlen, 1994, p. 27) as they apply to the observed sample. Internal validity for this study was addressed by member checking when the researcher presented the transcripts of interviews and the results of the study to the participants for their feedback. Participants all acknowledged that the data presented accurately reflects their input.

External validity is “concerned with how the findings in a study can be generalized to other similar groups” (Honeycutt, 2002, p. 47). The responses gathered as data for this study examine the feelings of individual teachers, so the results may be limited; however, since the sample includes high school teachers of varying experience and backgrounds, the results may be applicable to a larger body of teachers. One aspect concerning external validity that I would alter, should I conduct a similar study, would be to include, also, teachers who have a history with comic books and graphic novels, either as pleasure readers or teachers of these types of texts.

Reliability refers to the criterion concerned with the stability, consistency, and equivalence of the findings and interpretations of the study. It is the extent to which repeated administrations of a measure will provide the same data, or the extent to which a measure administered once, but by a different person, would produce equivalent results. (Honeycutt, 2002) I feel confident that the teachers who participated in the study were honest with me in terms of their evaluations of the graphic novel, so results from other interviews would be identical. I cannot guarantee
this, however. During all of my discussions with these teachers about the evaluation, I attempted to ensure that none of my comments would force bias or sway their responses.

**LIMITATIONS OF THE STUDY**

One of the main limitations of the study, though I feel this is somewhat beneficial so far as honest results go, was that none of the participants were active readers/users of comic books and graphic novels. The study would have benefited from the perspective of teachers who know more about graphic novels, either as readers of or teachers of.

Another limitation was that the participants knew, from previous conversations unrelated to this study, that I intend to use the evaluated text as the research material for my dissertation, and while I feel that they were honest with me in their responses, this fact may have colored their evaluation. In a redesign, I could either interview teachers who didn’t have prior knowledge of my research or have an assistant conduct the interviews.
Appendix 7.2
Instructions: This is test form “A”; please write “A” where the answer sheet asks for “your name”. Also, under “your name”, please note the following: (1) your gender, (2) your academic level (AP, honors, academic), and (3) whether you are using the graphic novel version or the plain text version of the play.

You may use the text as you respond to the questions below. Mark only one answer for each question, and be sure to select the best answer.

Note: “Line” refers to a specific line of the play; “wb” refers to a particular word balloon on a given page (e.g., 15.3 means page 15, word balloon 3).

Using Act I, scene i, answer questions 1-5.

1. Which of the following best describes the witches in scene one of the first act?
   a. withered old hags who delight in tormenting people
   b. apparently average women who have supernatural abilities
   c. somewhat attractive women who entice men to work their magic
   d. a combination of the above descriptions

2. In what way do the witches most likely contribute to the mood of the first scene?
   a. They add an air of intrigue and curiosity.
   b. They add an air of darkness and foreboding.
   c. They add an air of humor and lightness.
   d. They add an air of spiritualism.

3. Based upon the text, which of the following would a reader most likely assume regarding the witches’ motivation for involving themselves in Macbeth’s affairs?
   a. They enjoy helping people discover their potential.
   b. They are curious about the actions of humans.
   c. They work for the betterment of mankind.
   d. They enjoy manipulating and harassing people.

4. The witches presented to the reader would most likely answer to whom?
   a. God
   b. The Devil
   c. no one / themselves
   d. Nature

5. What is most likely the tone Shakespeare intends for the first scene?
   a. one of pleasantness and joy
   b. one of natural harmony
   c. one of fear and mystery
   d. one of respect and admiration

Using Act II, scene i, answer questions 6-15.

6. In the context of the passage, the word “candles” (line 6; wb 29.7) refers to what?
   a. torches
   b. lights
   c. eyes
   d. stars
7. The overall meaning of *lines 7-10* or *wb 29.8* is that...
   a. Banquo cannot sleep because he has too much work to get done before the king awakens.
   b. Banquo is having trouble sleeping because his mind is racing.
   c. Banquo cannot sleep because he is not tired since he napped during the trip to the castle.
   d. Banquo is exhausted and is heading off to bed right away.

8. In the context of the passage, the word “largess” (line 15; *wb 29.12*) refers to what?
   a. a sword
   b. an apology
   c. a ring
   d. a diamond

9. The pronoun “them” (line 22; *wb 30.2*) refers to...
   a. business arrangements
   b. the king and his guards
   c. the king’s gifts
   d. the weird sisters

10. To whom does Macbeth speak this line: “Is this a dagger which I see before me?”
    a. the servant
    b. Banquo
    c. Fleance
    d. himself

11. The overall meaning of *lines 37-50* or *wb 31.4 - 32.1* is that...
    a. Macbeth envisions an imaginary dagger because of his guilt and fear.
    b. Macbeth finds a dagger and suspects that Banquo, who just left, is trying to send him a message.
    c. Lady Macbeth left one of the guards’ daggers for Macbeth to use when killing Duncan instead of his own.
    d. Macbeth finds a dagger which looks like his own, and it makes him begin to doubt what he is about to do.

12. In the context of the scene, the word “palpable” (line 41; *wb 31.5*) most likely means...
    a. dangerous
    b. able to be felt
    c. able to be controlled
    d. mysterious

13. Macbeth’s request of the earth employs which literary device?
    a. allusion
    b. simile
    c. onomatopoeia
    d. personification

14. The overall meaning of *lines 61-62* or *wb 32.4* is that...
    a. Macbeth is hoping that one of his co-conspirators will kill Duncan before he is forced to do it.
    b. Macbeth feels that he should wait before going to find Duncan because he may not be asleep yet since it is so cold outside.
    c. Macbeth realizes that nothing will be accomplished if he just stands there talking, that he needs to act.
    d. Macbeth decides that murdering the king is a terrible idea and abandons the plan.
15. In the context of the scene, the word “knell” (line 64; wb 32.5) is most likely a reference to...
   a. the sound of a funeral bell
   b. an undertaker
   c. Charon, the ferryman of the dead
   d. a small hill where one may be buried

**Using Act III, scene i, answer questions 16-25.**

16. To whom does Banquo speak this line: “Thou hast it now – king, Cawdor, Glamis, all”?
   a. Macbeth
   b. the weird sisters
   c. Ross
   d. himself

17. “I fear thou play’dst most fouly for it” (lines 2-3; wb 49.2) is an example of
   a. hyperbole
   b. allusion
   c. dramatic irony
   d. oxymoron

18. In lines 15-18 or wb 49.7, which terms best describe Banquo’s tone?
   a. happy and congratulatory
   b. sarcastic and suspicious
   c. angry and vengeful
   d. apathetic and disinterested

19. Why are Macbeth’s comments in lines 29-31 or wb 50.7 ironic?
   a. Macbeth is attempting to blame Malcolm and Donalbain to Banquo, even though he has already confessed his role in the murder.
   b. Macbeth is trying to direct Banquo’s suspicion to Malcolm and Donalbain because he believes Banquo killed the king and wants to gauge his reaction to the comments.
   c. Macbeth is attempting to slander Malcolm and Donalbain to ease his own guilt.
   d. Macbeth is trying to cast suspicion on Malcolm and Donalbain while Banquo already suspects Macbeth.

20. What can we infer from Macbeth’s command in lines 40-43 or wb 51.1?
   a. He is being sincere and wants his guests to have a chance to miss each other.
   b. He is being insincere because he doesn’t like his guests and wants a break from them.
   c. He is being deceitful and simply wants no one to know anyone else’s whereabouts.
   d. He is being cautious and protecting himself from an assassination attempt.

21. To whom does Macbeth speak this line: “To be thus is nothing, but to be safely thus”?
   a. Lady Macbeth
   b. a servant
   c. himself
   d. another noble

22. The reference to Mark Antony and Caesar (line 57; wb 51.7) is an example of...
   a. an enigma
   b. an allusion
   c. a fallacy
   d. an allegory
23. In the context of the scene, the word “filed” or “fil’d” (line 65; wb 52.1) most likely means...
   a. sharpened
   b. troubled
   c. confused
   d. resolved

24. The word “list” (line 71; wb 52.2) is most likely a reference to...
   a. God’s book of judgment
   b. his own family tree
   c. a record of debts owed to the crown
   d. an area used for jousting in Medieval times

25. The overall meaning of lines 64–72 or wb 52.1–52.2 is that...
   a. Macbeth would rather challenge fate to a battle than allow Banquo’s descendents to take over the throne.
   b. Macbeth hopes to find a way for his descendents and Banquo’s descendents to become one family though a marriage.
   c. Macbeth is angry at the fact that he will have no descendents to take over the throne, but glad that if another family has to take over that it will be the children of his best friend.
   d. Macbeth is considering stepping down from the throne and allowing Banquo to become king since his family will reign one day anyway.

**Using Act V, scene iii, answer questions 26-32.**

26. To whom does Macbeth speak this line: “Bring me no more reports. Let them fly all”?
   a. himself
   b. the doctor
   c. an attendant
   d. Malcolm and Donalbain

27. What can the reader infer about Macbeth’s feelings about the messenger’s appearance from lines 16-19 or wb 111.1–111.3?
   a. Macbeth is worried and fearful because of the approaching army.
   b. Macbeth is angered by the messenger’s pale look as it shows his fear.
   c. Macbeth is pleased by the messenger’s excitement since Macbeth will have a chance to show his power.
   d. Macbeth is honored by the reverence the messenger is showing.

28. The expression “the yellow leaf” (line 25; wb 111.9) is most likely a reference to...
   a. death
   b. old age
   c. poor health
   d. betrayal

29. In the context of the scene, the word “skirr” (line 37; wb 112.8) most likely means...
   a. to instill fear
   b. to subject a place to a thorough search
   c. to evacuate
   d. to attack an enemy

30. To whom does Macbeth speak this line: “Hang those that talk of fear. Give me mine armor”?
   a. himself
   b. the doctor
   c. Lady Macbeth
   d. Seyton

125
31. To what is Macbeth referring in **lines 42-47** or **wb 113.2**?
   a. his wife’s affliction
   b. his land’s affliction
   c. his own affliction
   d. his child’s affliction

32. In the context of the scene, the word “pristine” (line 54; wb 114.1) most likely means...
   a. clean and fresh
   b. original
   c. mysterious
   d. beautiful

**Using Act V, scene v, answer questions 33-40.**

33. From lines 2-7 or wb 117.3 – 117.4, what can the reader infer about Macbeth’s situation?
   a. He is taking a defensive position because many of his men have defected to join the opposing army, making him fearful of the outcome of the battle.
   b. He is taking a defensive position because he believes that Malcolm is a poor leader, and once he fails, the battle will turn in his own favor.
   c. Both A and B are true.
   d. Neither A nor B are true.

34. What impact does Lady Macbeth’s death most likely have on the reader’s perception of Macbeth?
   a. His fear shows that he has resigned himself to defeat.
   b. His anxiety shows that he realizes the futility of all that he’s done.
   c. His apathy shows that he is too far gone.
   d. His humor shows that he didn’t ever really care about his wife.

35. How does Lady Macbeth’s death affect the mood of the setting.
   a. Now, a sense of sadness overrides the impending battle.
   b. An air of calm comes over Macbeth now that he doesn’t have to worry about her illness.
   c. An aura of mystery now surrounds the characters.
   d. The mood is not much changed by her death.

36. The purpose of the repetition in **line 19** or **wb 118.6** is to...
   a. establish a time when Lady Macbeth should have died.
   b. Indicate Macbeth’s increasing panic.
   c. to demonstrate Macbeth’s loss of sanity.
   d. emphasize the “petty pace” of the passing of time.

37. **Lines 21-23** or **wb 118.6** compare history to...
   a. a torch-bearer giving travelers light
   b. executioners preparing to burn a victim at the stake
   c. marauders using torches to burn a village
   d. a torch which reveals one’s surroundings

38. The overall meaning of **lines 24-28** or **wb 118.8** is that...
   a. authors understand life better than their audiences.
   b. actors present a more accurate picture of history than historians.
   c. the tale of life may be noisy and exciting, but it is essentially meaningless.
   d. life is too short.
39. The fact that the “tale” (line 26; wb 118.8) is told by an “idiot” (line 27; wb 118.8) indicates that it is...
   a. comical
   b. tedious
   c. annoying
   d. meaningless

40. What do lines 33-35 or wb 119.4 reveal about the witches? (Refer to Act IV, scene i or wb 84.1 – 84.3)
   a. Their intellect is far greater than Macbeth’s.
   b. Their main motivation is to entertain those around them.
   c. They cannot be trusted because they do not, in fact, have supernatural knowledge.
   d. They delight in deliberately misleading people.
Appendix 7.3
Table 7.1. Characteristic Views of Witches during the English Renaissance

<table>
<thead>
<tr>
<th>Description</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>detestable slaves of the Devill</td>
<td>Daemonologie†</td>
</tr>
<tr>
<td>ther can be such a thing as Witch-craft</td>
<td>Daemonologie</td>
</tr>
<tr>
<td>...manifest by true experience</td>
<td>Discourse of the Damned...‡</td>
</tr>
<tr>
<td>as a thiefe [the witch] delightes to steale</td>
<td>Daemonologie</td>
</tr>
<tr>
<td>So wither'd... / [they] look not like the inhabitants o' the earth</td>
<td>Macbeth*</td>
</tr>
<tr>
<td>Witch craft is a wicked art</td>
<td>Discourse of the Damned...</td>
</tr>
<tr>
<td>[distinguishable] from good and lawfull Arts, taught in schooles of learning</td>
<td>Discourse of the Damned...</td>
</tr>
<tr>
<td>[witches practice] the raising of stormes and tempests; the poysoning of the ayre; the procuring of strange passions and torments in mens bodies, and other creatures; &amp;c.</td>
<td>Discourse of the Damned...</td>
</tr>
<tr>
<td>both sexes or kinds of persons, men and women</td>
<td>Discourse of the Damned...</td>
</tr>
<tr>
<td>...wild in their attire</td>
<td>Macbeth</td>
</tr>
<tr>
<td>the Punishment of a Witch, and that is Death</td>
<td>Discourse of the Damned...</td>
</tr>
<tr>
<td>You should be women, / And yet your beards</td>
<td>Macbeth</td>
</tr>
<tr>
<td>forbid me to interpret / That you are so.</td>
<td></td>
</tr>
</tbody>
</table>

† From Daemonologie by King James VI of Scotland, I of England; published Edinburgh, 1597
‡ From A Discourse of the Damned Art of Witchcraft: So Farre forth as it is revealed in the Scriptures, and manifest by true experience by M. William Perkins; published Cambridge, 1618
* From The Tragedy of Macbeth by William Shakespeare; written circa 1607
Appendix 7.4
## The National Assessment of Educational Progress Descriptions of Achievement Levels for Grade 12

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic</strong> (265)</td>
<td>Twelfth-grade students performing at the Basic level should be able to identify elements of meaning and form and relate them to the overall meaning of the text. They should be able to make inferences, develop interpretations, make connections between texts, and draw conclusions; and they should be able to provide some support for each. They should be able to interpret the meaning of a word as it is used in the text.</td>
</tr>
<tr>
<td><strong>Proficient</strong> (302)</td>
<td>Twelfth-grade students performing at the Proficient level should be able to locate and integrate information using sophisticated analyses of the meaning and form of the text. These students should be able to provide specific text support for inferences, interpretative statements, and comparisons within and across texts.</td>
</tr>
<tr>
<td><strong>Advanced</strong> (346)</td>
<td>Twelfth-grade students performing at the Advanced level should be able to analyze both the meaning and the form of the text and provide complete, explicit, and precise text support for their analyses with specific example. They should be able to read across multiple texts for a variety of purposes, analyzing and evaluating them individually and as a set.</td>
</tr>
</tbody>
</table>

Appendix 7.5
Act One
Scene One

A drear field:
open place.

WHERE WE
PLACED
UPON THE
MEATH.

THREE MEET
AGAIN?

IN THUNDER,
LIGHTNING, ODE
IN SMOKE.

WHEN SHALL
WILL THE
HURLING?
Dooms, ood.

WHAT WILL BE
THE SET OF
SUN.

THESE TO
MEET WITH
MACBETH.

FAIR IS
POUL, AND
FAIR IS
FAIR;

OVER
THROUGH THE
Fog AND PITHY
AIR.

I COME,
GRAYWALKER!

PADDOCK
CALLS!

ANON!
Act 1

Scene 1
An open place, near Forres

Lightning and thunder. Enter Three Witches

Witch 1 When shall we three meet again
In thunder, lightning, or in rain?
Witch 2 When the hurlyburly's done,
When the battle's lost and won.
Witch 3 That will be ere the set of sun.
Witch 1 Where the place?
Witch 2 Upon the heath.
Witch 3 There to meet with Macbeth.
Witch 1 I come, Graymalkin!
Witch 2 Paddock calls.
Witch 3 Anon!

All Fair is foul, and foul is fair.
Hover through the fog and filthy air.

Exeunt