May 2017

An Examination of Accuracy and Elaborations for Character Traits in a Narrative

Michael Palena
University of Nevada, Las Vegas, michael.palena@gmail.com

AN EXAMINATION OF ACCURACY AND ELABORATIONS FOR CHARACTER TRAITS IN A NARRATIVE

By

Michael T. Palena

Bachelor of Arts – Psychology

University of Notre Dame

2013

A thesis submitted in partial fulfillment

of the requirements for the

Master of Arts – Psychology

Department of Psychology

College of Liberal Arts

The Graduate College

University of Nevada, Las Vegas

May 2017

UNLV | GRADUATE COLLEGE

Thesis Approval

The Graduate College
The University of Nevada, Las Vegas

April 7, 2017

This thesis prepared by

Michael Palena

entitled

An Examination of Accuracy and Elaborations for Character Traits in a Narrative

is approved in partial fulfillment of the requirements for the degree of

Master of Arts – Psychology
Department of Psychology

David E. Copeland, Ph.D.
Examination Committee Chair

Kathryn Hausbeck Korgan, Ph.D.
Graduate College Interim Dean

Mark H. Ashcraft, Ph.D.
Examination Committee Member

Murray G. Millar, Ph.D.
Examination Committee Member

CarolAnne M. Kardash, Ph.D.
Graduate College Faculty Representative

ABSTRACT

When people read a story, they often form a highly detailed representation known as a situation model. The event-indexing model (Zwaan, Langston, & Graesser, 1995) proposes that situation models are constructed along several indices, one of which is protagonist or character. While much research has been devoted to the study of tracking and forming trait-based models of fictional characters, little attention has been paid to the representation of characters' external attributes. In Experiment 1, participants read a short story containing various characters and their attributes. Participants were then asked to recall the characters and their attributes, either according to their memory of the text or their imagined mental representation. Comparisons were also made across several types of cues (i.e., free recall, cued recall, multiple-choice). The results showed that when participants were explicitly probed for certain attributes, they were generally able to follow instructions; the memory group made fewer contradictions and elaborations than the imagination group in both the cued recall and multiple-choice conditions. Moreover, when characters were not well-described – as was the case with the minor characters – participants readily generated elaborations for the missing attributes. In Experiment 2, participants read new versions of the same story, this time with greater experimental control over the distribution of attributes among the characters. Again, comparisons were made across recall instruction condition (i.e., memory vs. imagination) and cue type (i.e., free recall, cued recall, multiple-choice). As in Experiment 1, participants showed an ability to differentiate between textual information and imagined traits, with the memory group producing fewer elaborations. Additionally, a strong preference for the principal/major characters was observed; participants were most accurate for those characters, regardless of description level, and elaborations were highest in the stories in which those characters were less than fully described. Taken together,

the results from these two experiments suggest that readers may be constructing mental representations of characters on two levels: one sourced from the text and one embellished by the reader's imagination. Additionally, the evidence suggests that elaboration is a natural process occurring whenever characters are not completely described, though there appears to be a bias towards principal/major characters over lesser characters.

ACKNOWLEDGEMENTS

I would like to acknowledge my thesis committee: Dr. David Copeland, Dr. Mark Ashcraft, Dr. Murray Millar, Dr. CarolAnne Kardash, and Dr. Gregory Schraw. Thank you all for your input, your guidance, and your support throughout this project. In particular, I would like to thank my advisor, Dr. David Copeland, for helping me shape my skills as a researcher. I have learned much in the past four years, and I have you to thank for that growth.

I would not be here without the tireless work of my research assistants: Kimberly Lai, Vincent Nguyen, and Demi Tuuk. There was a lot of coding involved, but their contribution to this final project has not gone overlooked. Finally, I would like to acknowledge my colleagues from the Reasoning and Memory Lab: Kris Gunawan, Kathleen Larson, and Amber Williams. Your advice and support meant a lot to me and helped me reach the finish line.

DEDICATION

This thesis is dedicated to my parents, Raymond and Diane Palena, who have always been my biggest supporters. Even when I gave them every reason for doubt, their faith and love in me never faltered. I would not be half the man I am today without them. I would also like to dedicate this thesis to Christa Costello, my constant companion through all these years. You have been with me every step of the way, pushing me to be the best version of myself, and I can only hope to make you proud each and every day.

Lastly, to my colleagues Jessica Nave-Blodgett and Christopher Kiley: thank you for being the best cohort-mates I could ever want. Through the theses and the classes, the good times and the bad, we have formed a bond that I will always cherish. May you find success in all your endeavors, and may our friendship never fade.

TABLE OF CONTENTS

ABSTRACT iii
ACKNOWLEDGEMENTS v
DEDICATION vi
LIST OF FIGURES ix
CHAPTER 1: INTRODUCTION 1
CHAPTER 2: REVIEW OF RELATED LITERATURE 2
Situation Models 2
The Event-Indexing Model 3
Tracking Characters 5
Trait-Based Model of Characters 8
Vicarious Experience 11
Memory for Physical Attributes 12
Physical Attributes in Narratives 13
CHAPTER 3: EXPERIMENT 1 18
Method 20
Participants 20
Materials and Procedure 21
Results 25
Free Recall 25
Cued Recall 30
Multiple-Choice 34
Discussion 38
CHAPTER 4: EXPERIMENT 2 40
Method 42
Participants 42
Materials and Procedure 42
Results 44
Free Recall 44
Cued Recall 49
Multiple-Choice 55
Discussion 61
CHAPTER 5: GENERAL DISCUSSION 63
Limitations and Future Directions 66
CHAPTER 6: CONCLUSION 69
APPENDIX A 70
APPENDIX B 83
APPENDIX C 89
REFERENCES 91
CURRICULUM VITAE 96

LIST OF FIGURES

Figure 1. Correctly recalled traits per character by character type and instruction (Experiment 1 Free Recall). 27
Figure 2. Contradicted traits per character by character type and instruction (Experiment 1 Free Recall). 28
Figure 3. Elaborated traits per character by character type and instruction (Experiment 1 Free Recall). 30
Figure 4. Correctly recalled traits per character by character type and instruction (Experiment 1 Cued Recall). 32
Figure 5. Contradicted traits per character by character type and instruction (Experiment 1 Cued Recall). 33
Figure 6. Elaborated traits per character by character type and instruction (Experiment 1 Cued Recall). 34
Figure 7. Correctly recalled traits per character by character type and instruction (Experiment 1 Multiple-Choice). 36
Figure 8. Contradicted traits per character by character type and instruction (Experiment 1 Multiple-Choice). 37
Figure 9. Elaborated traits per character by character type and instruction (Experiment 1 Multiple-Choice). 38
Figure 10. Correctly recalled traits per character by character type and instruction (Experiment 2 Free Recall). 45
Figure 11. Contradicted traits per character by character type and instruction (Experiment 2 Free Recall). 47
Figure 12. Elaborated traits per character by character type and instruction (Experiment 2 Free Recall). 49
Figure 13. Correctly recalled traits per character by character type and instruction (Experiment 2 Cued Recall). 51
Figure 14. Contradicted traits per character by character type and instruction (Experiment 2 Cued Recall). 53
Figure 15. Elaborated traits per character by character type and instruction (Experiment 2 Cued Recall). 55
Figure 16. Corrected recalled traits per character by character type and instruction (Experiment 2 Multiple-Choice). 57
Figure 17. Contradicted traits per character by character type and instruction (Experiment 2 Multiple-Choice). 58
Figure 18. Elaborated traits per character by character type and instruction (Experiment 2 Multiple-Choice). 61

CHAPTER 1

INTRODUCTION

Many people enjoy reading fiction as it can provide an outlet into imaginary worlds and scenarios (Zwaan, 1999). Research has shown that when reading a fictional story, readers often construct rich mental representations of the events, characters, and actions described within the text. These representations, which are referred to as situation models (Zwaan & Radvansky, 1998), bring the narrative to life through imagined imagery constructed by the reader. When confronted with conflicting information, as is the case when a book is later adapted into a movie, readers often defend their original interpretation (generated from the text) zealously. For example, a casual search of internet fan sites can reveal evidence of people protesting casting choices of actors and actresses for movie roles, often citing examples from the book which suggest that the actor in question is a bad fit for the character. Anecdotally, many people who read a book before it was made into a movie make claims such as, "The book was better," as the film may not live up to how the reader may have represented the characters and events. The goal of this study was to examine how readers construct such strong representations of characters that are described in a fictional narrative. By examining readers' accuracies, and possibly, elaborations, for character traits, it is believed that a better understanding of the basis for these situation models can be achieved.

CHAPTER 2

REVIEW OF RELATED LITERATURE

Situation Models

When people read a story, they construct several mental representations (van Dijk & Kintsch, 1983). At the most basic level, readers construct a representation of the text itself. This surface representation retains the exact form of the letters and words in the sentence. The next level of representation is the propositional textbase. This textual representation ensures local and global coherence between propositions embedded in the content of the text. While the surface representation of the sentence, "John walked the dog," would be those exact words, a propositional textbase representation of that same sentence might look like this: [WALKED (JOHN, DOG)]. Such a representation allows the reader to utilize the semantic information in the sentence to understand that "the dog" is the object of the action "walked," which is performed by "John." Thus, the propositional textbase does not depend on the exact words used, as long as that idea is expressed (e.g., "John took the dog for a walk," or "The dog was walked by John," would both be consistent with this level). Finally, readers also construct a representation of the state of affairs described by the text. Sticking with the earlier example, "John walked the dog," a situation model representation might be more pictorial in nature. For example, a reader may elaborate on the original sentence with likely inferences by picturing a man walking with a dog on a leash. This situation model constructed in episodic memory tracks the events, persons, and actions described by the story (van Dijk & Kintsch, 1983). As can be seen in the example, situation models draw on information from the text as well as the reader's own knowledge, experience, and expectations. That is, while the previous sentence gives no descriptive information about John or the dog, a reader may use their previous experience and expectations

to imagine what those two characters may look like. For instance, although the sentence, "John walked the dog," makes no mention of a leash, the presence of one is an easy inference to make, based on past experience with dogs. In this way, different readers' situation models of "John walked the dog" may contain the same basic idea, but there might be aspects that are unique to them.

The Event-Indexing Model

Prior to a set of experiments conducted by Zwaan, Magliano, and Graesser (1995), studies of situation model construction were typically centered on a single aspect, such as temporal order (Mandler, 1986), spatial layout (Ehrlich & Johnson-Laird, 1982), or causal relationships (Fletcher & Chrysler, 1990). However, it was unclear whether readers simultaneously tracked these aspects or dimensions. In a reading time experiment, Zwaan et al. (1995) found that discontinuities in the temporal and causal dimensions led to elevated reading times. This was interpreted to mean that readers were slowing down to either update their situation models or to construct a new one if there was enough change, suggesting that readers do indeed track multiple dimensions while reading. As a result of these findings, Zwaan, Langston, and Graesser (1995) proposed the event-indexing model for explaining how readers create and maintain their situation models as they progress through a story. The event-indexing model states that when reading a story, a reader monitors five indices: time, space, causality, motivation, and entity (sometimes called character or protagonist). As readers begin a story, they construct a multicomponent model of the situation being described, and each of the five indices is represented by an event node in working memory. When there is a discontinuity on any of these dimensions, such as a change in the spatial index, it causes the reader to deactivate the current node and either activate a new node (e.g., a new location in the story) or reactivate an old

node (e.g., a previously visited location). This increase in processing during situational discontinuities can be observed by reading time increases, such as those observed by Zwaan, Magliano, and Graesser (1995). In this way, readers, in real-time, keep track of where and when actions are taking place, how each action led to the next, why certain actions were performed, and – most importantly for the current study – which characters or agents were present or involved in the action. This suggests that readers construct a coherent representation of the information presented in the text, and they are sensitive to changes in any of the five dimensions.

The first dimension, time, has long been recognized as integral to the creation of situation models from a narrative (e.g., Zwaan, 1996). For example, to make sense of events in a story, it is often necessary for readers to understand when events took place relative to one another. The second dimension, space, has been the subject of intensive study in narrative comprehension studies (e.g., Zwaan & van Oostendorp, 1993). Although research suggests that people construct a spatial framework of events and monitor spatial relationships among people, objects, and locations (Glenberg, Meyer, & Lindem, 1987), spatial shifts often fail to produce the increased reading times seen with shifts in the other four dimensions; however, there is consistent memory evidence that suggests that space is monitored and leads to updating of the reader's situation model (see Radvansky & Copeland, 2010). The third dimension, causation, is closely tied to the first dimension, time. Causation in stories can be stated explicitly through phrases such as "because" or "therefore," but causation is often inferred by the reader using temporal information in conjunction with their own knowledge (Zwaan & Radvansky, 1998). In the following example, "Sarah studied for weeks leading up to the test; she received the highest grade in the class," readers can make the inference that Sarah's studying caused her to receive the highest grade. This inference is based on the fact that the studying is described as coming before the test,

as well as the knowledge that studying leads to better performance. The fourth dimension of the event indexing model, intentionality, is often utilized by readers to predict characters' actions (e.g., Lichtenstein & Brewer, 1980). Because much of human behavior is goal oriented, readers use goals to organize the structure of events in a narrative by tracking the goals of the characters. The last dimension of the event indexing model, entity, is the most critical for this thesis. Entities can refer to simple objects or characters, such as the protagonist (i.e., main character). Characters can be thought of as the "heart" of narratives. While it is possible to read passages which may only touch upon the spatial and temporal indices (e.g., some forms of poetry), it is rare to read a literary text that is not in some way driven by a character or entity. In many cases, characters are designed to be in some way relatable to the reader. This provides a vicarious reading experience as readers attempt to put themselves in the character's "shoes," to imagine how they would react and respond if they suddenly found themselves in the character's situation (Houska, 2011). When this happens, a reader can become very attached to their mental representation of that character. Because situation models are so personalized, this can result in many readers with a different interpretation of the same character description – each of whom believes that their experience of the character is the "true" experience.

Tracking Characters

Most narratives contain more than one entity or character. Thus, successful narrative comprehension relies on the reader's ability to effectively manage many separate representations within the entity index of the event-indexing model. Although this can sound like a daunting task – particularly as the complexity of the narrative increases – most readers succeed with little or no difficulty. Gernsbacher, Robertson, Palladino, and Werner (2004) wanted to investigate the nature of this reading skill and, based on intuitive reasoning, they argued that re-mentioning a

previously introduced character would strengthen the accessibility of that character's mental representation. Similarly, they hypothesized that introducing a new character would weaken the accessibility of a previously introduced character. Indeed, after reading a short narrative, readers were able to verify the main character's name more quickly – as measured by latencies to a simple yes/no probe – when that character had been re-mentioned (Gernsbacher et al., 2004). In addition to this benefit, there was also a cost (i.e., increased response latencies) when a new character had been introduced. These results were replicated in verification errors as well. This supports the idea that individual characters are represented separately during reading, rather than simply being combined into one "character" representation.

This ability to effortlessly track multiple characters throughout the course of a narrative is dependent upon the reader's ability to maintain multiple representations in working memory. Thus, differences in working memory ability should manifest in narrative comprehension through differences in tracking characters. In a series of experiments using the same basic test as Gernsbacher et al. (2004), accessibility of characters after re-mentioning that character or introducing a new character was compared across two groups, younger adults and older adults (Noh & Stine-Morrow, 2009). Though the older adults scored similarly in the rate of verification errors, they did show increased latencies compared to their younger counterparts. This suggested that age differences in working memory may result in a greater attentional cost for older adults when accessing an older character in the presence of a new one (Noh & Stine-Morrow, 2009). In a second experiment in which the verification probe corresponded with the new character, as opposed to the old one, the older adults again showed an increased processing cost. They were unable to fully disengage from the original character in order to effectively encode the new character.

The results of these two studies illustrate a simple yet important point about the mental representation of characters in a narrative. Successful narrative comprehension requires the ability to track multiple representations of entities, yet attentional and working memory demands limit the amount of information a reader can keep accessible at a given time. The accessibility of information about a character may be enhanced by their importance within a story: main characters appear often, and each reappearance may strengthen the representation of that character. However, this strengthening of main characters may come at the cost of the ability to fully encode or completely access representations for other, lesser characters.

Additionally, readers track characters according to their perceived importance within the narrative. In a study by Gerrig, Love, and McKoon (2009), participants read short narratives which contained some "small mystery" about an unseen character. In other words, a character was introduced without an immediate explanation of their connection to the larger story. For example, two characters having a discussion would mention a third character by name (e.g., "Did you hear about Brendan?"). In these cases, the character was more accessible than in cases where the character's relationship was immediately resolved (e.g., "Did you hear about my son, Brendan?"). Additionally, characters introduced by name were more accessible than characters introduced only by description. Presumably, when a named character is introduced but their relationship to the story is not revealed, readers perceive that character as being important and maintain that concept in memory until the "small mystery" is resolved (Gerrig et al., 2009). In a later study, it was found that introducing the character along with trait information (e.g., "daredevil Judy") was insufficient to connect the character to the text (Love, McKoon, & Gerrig, 2010). This suggests that readers construct an unconscious "hierarchy" of characters when reading, lending greater importance to some over others. Not all characters contribute equally to

the advancement of a story's plot. Accordingly, readers tend to prioritize the characters that are central to the action.

Trait-Based Model of Characters

Not only do readers track characters, they also track the unique traits associated with these characters. In many cases, readers use these traits to make sense of ongoing events within a story. In line with this suggestion, Albrecht and O'Brien (1993) investigated how readers respond to violations of both local and global coherence across characters and actions in the text. Participants were introduced to a character and given some characteristic possessed by that character. Then, a story involving that character followed the short introduction. In a critical sentence, the character was described as engaging in an action which was consistent, inconsistent, or unrelated to the previously defined characteristic or character trait. Even in situations when the described action was locally coherent (i.e., the action made sense in the context of the larger, ongoing story), readers encountered comprehension difficulty – as evidenced by slower reading times – when the action was globally incoherent (i.e., the action contradicted the character's trait, such as a vegetarian eating a hamburger) (Albrecht & O'Brien, 1993). This finding further supports the idea that readers are good at monitoring character traits, and their experience of reading a story can be shaped by their understanding of those traits.

This tracking of character-specific traits seems to be an ongoing process which does not require constant maintenance of these traits in memory. Using the same paradigm as Albrecht and O'Brien (1993), O'Brien, Rizzella, Albrecht, and Halleran (1998) introduced a new condition wherein a qualification was added to the described characteristic which modified its operation in some way. For instance, if the given characteristic was "Mary is a vegetarian," then one qualification might be, "She doesn't always stick to her diet." If readers integrate the

qualification fully into their trait-based model and maintain this information in active memory, then they should experience no comprehension difficulty when Mary is described as eating meat. However, even with these qualifications in place, readers still slowed down when reading a critical sentence that was inconsistent with the original characteristic (O'Brien et al., 1998). This suggests that readers integrate the trait into their model, as Albrecht and O'Brien (1993) demonstrated, but they do not hold the subsequent qualification in memory. When they encounter a triggering situation, they must pause to consult their model for the qualification to activate. Thus, traits and characteristics seem to hold an important place in narrative processing involving characters.

These trait-based models of characters do more than help the reader make sense of ongoing events. They also play an important role in inference generation during narrative processing. Once the models are in place, readers use them to predict outcomes within a story. Using a similar procedure as these other trait-based model studies, Peracchi and O'Brien (2004) presented participants with stories that depict a character about to take some action which is either consistent, inconsistent, or neutral with regard to some previously given trait (e.g., short-tempered). Immediately after this inference-evoking sentence, participants are presented with a probe related to the inferred action and asked to speak the word aloud. Compared to a baseline condition in which no inference was evoked, participants in the consistent condition are able to name the probe more quickly, suggesting that the predictive inference was activated. Participants in the inconsistent condition present naming times closer to the baseline (Peracchi & O'Brien, 2004). Trait-based models prime predictive inferences when the preceding context is consistent with the given traits. Readers are readily generating these kinds of inferences as they read.

Interestingly, it does not seem that these given traits need to be explicit, either. In many stories, readers generate trait inferences based on behavioral evidence from the characters. By this logic, Rapp, Gerrig, and Prentice (2001) had participants read two-part stories. In the first part, the character performed certain actions (e.g., Bryan lent his pen to a stranger) which led to some trait inference (e.g., Bryan is generous). In the second part, the character was put in a situation where they could demonstrate that inferred trait. Then, in a pair of critical sentences, that character either performed an action consistent or inconsistent with the trait. Even though the trait had never been explicitly given, participants relied on their inference to make decisions about whether the critical sentences made sense with the rest of the story. Percent agreement was higher for those in the consistent group, and reading times for the critical sentences were also shorter (Rapp et al., 2001). Participants form mental models of characters quickly and easily based on the information available to them, and these inferences can actually shape how they interpret subsequent story events.

Indeed, readers' situation models of character can have profound impact on how they interpret a story. A character's traits – in particular, their personality – can help generate expectations about future story events. Mensink and Rapp (2011) wanted to know how readers' expectations might be influenced by their opinions of a character. Participants read stories which were designed to encourage a like or dislike of a main character. In addition, there was behavioral evidence within the story that the character held a certain trait. Participants were later asked whether they believed that the character held that particular trait. When the valence of the character trait (i.e., positive or negative) matched the participants' preference towards a character, participants strongly judged the character to hold that trait. However, when the valence of the trait mismatched with the participants' preference towards the character, participants were

far less likely to judge the character as holding that trait (Mensink & Rapp, 2011). Thus, readers may reject a behaviorally-supported trait if it contradicts their opinion of a character.

Vicarious Experience

Part of the appeal of reading fictional stories is the sense of vicarious experience that readers can feel as they follow characters through a story's plot. In part, this is because readers are exceptionally skilled at interpreting a situation and figuring out how a character must feel. When Gernsbacher, Goldsmith, and Robertson (1992) presented characters in situations which primed some emotion, such as pride, they found that reading times were slowed if the target sentence described the character as having the opposite emotion – in this case, guilt. When participants read a story, they make assumptions about how the characters will feel, just as they made assumptions about how they will react (e.g., Peracchi & O'Brien, 2004). These assumptions are quite specific in nature. If the mismatched emotion shared the affective valence of the implied state (e.g., shyness instead of guilt), participants still took longer to read the critical sentences (Gernsbacher et al., 1992). Readers are acutely aware of the implied emotional state of characters, presumably because they are imagining themselves in the characters' "shoes," so to speak. Unlike the other situational dimensions, protagonists possess this relatable quality to the readers.

When readers represent characters and their internal qualities, they do not limit themselves to personality traits and emotions. Sometimes, it is important in a story to keep track of "who knows what" in narrative worlds. Gerrig, Brennan, and Ohaeri (2001) called this concept "projected knowledge." In third-person narratives, the narration can sometimes contain details of which the characters themselves are unaware. In a series of experiments, participants made judgments about whether certain characters knew certain information that was presented in

the narration. Depending on the kinds of statements the characters made, participants were more likely to support the character's assumed knowledge if their utterance implied a certain level of situational awareness (Gerrig et al., 2001). When knowledge is not necessarily available to all characters in a narrative, readers are able to keep track of which characters know which pieces of information.

Memory for Physical Attributes

To examine readers' memory for attributes presented in a narrative, it is first necessary to examine memory for attributes more generally. Perhaps the most popular line of research in that domain involves the "fan effect," as first described by Anderson (1974). In essence, as the number of associations for a concept increases, the retrieval times and error rates for that concept also increase. Largely, this is seen as a result of interference. In the context of narratives, then, the characters can be thought of as the "concepts," and their traits make up the various associations. Thus, it might be reasonable to assume that characters with many traits are more difficult to retrieve. However, the situation model theory first proposed by van Dijk & Kintsch (1983) argues quite the opposite. Situation models promote the integration of many different associations. Indeed, in an experiment by Radvansky and Zacks (1991), the fan effect disappeared when the series of associations were presented in such a way that they could be integrated into one situation model. This theory was supported by earlier examinations by Bransford and Franks (1971), who found that participants falsely recognized statements which integrated ideas from a set of previously presented sentences. More recently, Gómez-Ariza and Bajo (2003) found that these integration false alarms occur when the central idea or concept is a person, further suggesting that readers readily integrate character attributes.

There are, of course, limits to the amount of information that readers can successful integrate and track. In a study of memory set size, Kole and Healy (2007) had participants memorize 48 facts about fictional characters. These facts were presented in one of two ways: four facts each for twelve characters or twelve facts each for four characters. The group which learned fewer facts about a greater number of characters was slower to respond and made more errors on a later recall test (Kole & Healy, 2007). Although the four character group needed to learn more facts about each character, they were able to create richer, more highly integrated representations. Again, the ability to integrate attributes about a character allows for superior memory performance.

Physical Attributes in Narratives

While the above studies can tell us a lot about how people construct attribute-based representations of people – even fictional characters – it is important to note that many of these studies have only been concerned with the memorization of attributes in isolation, rather than attributes presented over the course of a narrative. Studying a list of attributes is a vastly different experience than reading a story and learning those same attributes passively. For example, Zwaan (1994) found that the process of text comprehension can be altered by the reader's expectations of genre. When participants were led to believe they were reading a literary text, they read slower and allocated more processing resources to the surface information than those reading the same text from a news perspective. Therefore, there is reason to believe that there may be differences between the representations of a trait-based character and a narrative-based one.

Thus far, the study of mental representation of fictional characters in narrative has largely been concerned with character traits that have some effect on the story. A character's personality

traits and attributes can influence how they will react in certain situations. Additionally, the story may lead characters to feel a certain way or become aware of certain information unavailable to other characters. In these cases, it seems that readers are quite adept at tracking these internal qualities. Surprisingly, very little attention has been paid to the representation of characters' external properties. The rapid inference generation related to characters' attributes as observed by Rapp, Gerrig, and Prentice (2001) is not limited to attributes which affect story comprehension. Even for inconsequential details, such as a character's gender, readers are quick to make inferences to augment their representations of the characters themselves. When a stereotypically gendered descriptive noun (e.g., doctor) was followed by a sentence containing a pronoun inconsistent with the stereotyped gender (in this case, "she" following "doctor"), reading times slowed (Carreiras, Garnham, Oakhill, & Cain, 1996). Upon reading that a character is a doctor, readers generate a situation model based on their previous experience with and past knowledge of doctors. Once they realize that their inference was wrong, upon encountering the inconsistent pronoun, they must slow down to update their representation accordingly – even though it may have no bearing on the plot of the story itself.

Perhaps the best study to date of externally-focused character representation comes from Morra and Guðbjörnsdóttir (2009), who used a structured interview procedure and cluster analysis to investigate the overall pattern of representation of two popular characters from Icelandic folk tales. Interestingly, despite the open-ended nature of the interview, Morra and Guðbjörnsdóttir (2009) were able to group memory recollections of the characters across levels of representation (from concrete descriptions to conceptual abstractions) and identify clusters of respondents. Although all participants read the same stories, subtle differences in mental models of these characters emerged. In many cases, participants reported content categories which were

absent from the text, and vividness of imagery ratings affirmed the idea that these responses were based on their representations while reading – and not simply a fabrication during the interview process (Morra & Guðbjörnsdóttir, 2009).

In a similar study, Cothern, Konopak, and Willis (1990) used readers' imagery of characters to study text meaning construction. Understanding a text requires contributions from both the text itself as well as the reader, so the researchers wanted to look at convergence and divergence of character descriptions between the text and the reader and between readers themselves. After two young students (ages 10 and 12) read the same two short stories, an interview was conducted wherein the students were asked to give descriptions of the characters. These descriptions could be categorized as lifestyle characteristics, personality traits, or physical appearance. More variation than commonality was found between the reader and the text, and the same was true between readers (Cothern et al., 1990). It seems that readers select different textual cues to elaborate upon, though the exact mechanisms for this effect were not explored in this study. However, it should be noted that these were young readers, and it is not clear whether similar patterns would be observed with adults.

Both studies introduce the idea that readers are elaborating upon the physical attribute information available in the text during the construct of their representations, though the precise mechanisms for this effect are still not well understood. In an early study by Morris, Stein, and Bransford (1979), readers received prior information about characters in a story which allowed them to make either a precise elaboration or an imprecise elaboration. For instance, in the precise elaboration condition, participants were first told that the "fat man had gotten stuck" and later that "the group felt sorry for the fat man." In this case, readers could easily make the elaboration that the group felt sorry that the fat man had gotten stuck. In contrast, for the imprecise

elaboration condition, the readers were told that the "fat man had made a fur hat." In this case, a reasonable explanation for why the group would feel sorry for the fat man is not readily available. If the readers did construct some elaboration – perhaps the fur hat was very ugly – they were less likely to remember that the fur hat was associated with the fat man on a later recall test. Because the fat man's defining trait was unrelated to the action he took, it made it more difficult to integrate and elaborate effectively.

These ideas may be related to the concept of schemata or schematic thinking. Schemata can be thought of as a particular type of mental representation pertaining to stereotypical situations (Alba & Hasher, 1983). In Morris et al.'s (1974) experiment, it was easy for readers remember the precise elaboration for the fat man because getting stuck is a stereotypical situation for a fat person. Many times, particularly in narratives, schemas take the forms of scripts. Scripts are stereotypical situations which contain common props, roles, and scenes. Bower, Black, and Turner (1979) asked participants to describe scripts for common scenarios (e.g., going to the dentist) and found a high level of agreement among the norms described by their participants. Thus, it may be that in the absence of contradictory information, readers utilize these schemata and scripts to form the backbone of their situation models when reading. The processes behind these exact elaborations merit further study.

Additionally, though the studies by Morra and Guðbjörnsdóttir (2009) and Cothern et al. (1990) provide a strong first step towards investigating the representation of external attributes for characters in a narrative, neither study examined character representation experimentally. Both studies utilized an interview procedure, and there was no manipulation of the materials, recall tests, or participant groups. To gain a better understanding of how readers are constructing

representations of character, it was necessary to move beyond interviews and introduce an element of experimental control.

CHAPTER 3

EXPERIMENT 1

The purpose of Experiment 1 was to observe how readers construct situation models of characters in a fictional narrative. Specifically, the goal was to test readers' memory for physical attributes given for different characters in a story. To accomplish this, a short story was written for this study. The narrative introduced nine characters at various points in the story, and each character was described with a set of physical attributes which served as the basis for later memory testing. Two of the characters (Nevin and Andrea) were considered "major characters" by virtue of their centrality to the story's plot. Moreover, the story was written largely from the third-person limited point-of-view of these two characters and, thus, the story was shaped around their thoughts and attitudes. The remaining seven characters were considered "minor characters." After reading the story, a number of different memory tests were administered. In particular, participants were probed (either by free recall, cued recall, or multiple-choice questions) to give a description of each of the nine characters. It was hypothesized that the type of memory probe would influence participants' reporting of characters' physical attributes. A free recall probe, for example, would allow a participant to report an unlimited, unstructured amount of information – thus increasing the chances that they would report something contradictory to given attributes or something elaborative in places where no attributes had been given. In contrast, a multiple-choice probe would force the participant to espouse concrete answers for each attribute in question. The different types of memory probes should also have an effect on memory accessibility for the given attributes. Cued recall and multiple-choice questions can increase accessibility by cueing the different attributes one at a time. Free recall participants are not told how many attributes to report, so they may overlook those attributes which do not come to mind

readily as they recall the characters. Thus, participants' accuracy should improve as the type of memory probe becomes more structured (i.e., free recall is less accurate than cued recall which is less accurate than multiple-choice). Moreover, the amount of contradictory or elaborative responses (i.e., contradictions and elaborations, respectively) should decrease with this increase in probe structure. Thus, there should be a main effect of cue type for each dependent variable (i.e., correct recalls, contradictions, and elaborations).

A second manipulation in Experiment 1 was that specific instructions for reporting attributes varied depending on whether a participant had been assigned to the memory only or imagination group. It is important to note that these instructions were provided after reading, to ensure that all participants read the story similarly. Memory only participants were instructed to only report specific details that they could explicitly recall being described in the story. Imagination participants were instructed to use their imagined mental picture, or situation model, of the character to inform their recall, regardless of the information presented in the story. This manipulation served to investigate whether readers are aware of the elaborative and inferential processes involved in the construction of situation models or not. If readers are not aware of the elaborations they are making beyond the surface text, then there should be no difference in the proportion of contradictory or elaborative information given between the memory and imagination groups. In other words, the memory group does not realize that their situation model contains false or added information. However, if readers are aware of their own elaborations, then it is possible that they are constructing two separate representations of characters: one grounded in information in the text, and another based on these elaborative processes. Thus, by giving explicit instructions to report attributes from memory or imagination, participants would be able to select information only from the appropriate representation. In this case, participants in

the memory group should show higher accuracy as well as fewer contradictions and elaborations as compared to the imagination group. In addition to this main effect of instruction type, there should be an interaction between instruction type and cue type, such that the difference in accuracy between both instruction groups decreases as the cue type becomes more structured. Lastly, it was hypothesized that there should be a difference in accuracy, contradictions, and elaborations between the major characters (i.e., Nevin and Andrea) and the minor characters. As Gerrig, Love, and McKoon (2009) demonstrated, readers tend to prioritize characters based on their perceived importance. Because Nevin and Andrea are so central to this story and are repeatedly mentioned more often than the minor characters, participants should remember them more clearly than the minor characters. Thus, responses for major characters should show higher accuracy, fewer contradictions, and fewer elaborations than responses for minor characters. There should also be an interaction between character type and cue type such that the difference in accuracy between character types is most pronounced in the free recall condition with a smaller advantage in the cued recall and multiple-choice conditions.

Method

Participants

A total of 229 participants (134 women, 95 men, M_{age} = 20.552 years, age range: 18 - 57 years) were recruited from psychology courses at the University of Nevada, Las Vegas using the subject pool. In return for their participation, participants were awarded research credits towards their course requirements and extra credit. All participants were required to be fluent in English. Participants with reading disabilities were excluded from participation.

Materials and Procedure

The story utilized in Experiment 1 was written for the purpose of this study (see Appendix A). It describes a group of college students working on an English project together over the weekend. The story was written in such a way that the plot is simple and easy to follow, while remaining interesting and relatable enough to keep the readers' attentions engaged (as measured by asking the participants to rate how much they liked the story upon completion). Because it is impractical to have participants read an entire novel for this experiment (although, see Copeland, Radvansky, & Goodwin, 2009), it was believed that these materials provide a more ecologically valid stimulus as compared to stimuli from other narrative comprehension studies, which typically are composed of much shorter stories (sometimes as short as 5 to 10 sentences in length) than this one.

Over the course of the story, a total of nine named characters were introduced – in order: Professor Gilmore, Nevin, Andrea, Dawn, Michelle, Naomi, Joshua, Zoran, Chuck. Nevin and Andrea were considered main characters, while the other seven characters were considered minor characters. Each character was described along with a set of one or more physical attributes from eight possible categories (i.e., age, hair color, hair length, height, race, glasses, eye color, and body shape). The mean number of given attributes was 4.222 (see Appendix B for a complete list of characters and their attributes).

Participants were seated in a cubicle at a computer and all experimental materials were administered using Qualtrics survey software. After the informed consent process, basic demographic information was collected (i.e., age, gender). Participants were then instructed that they would be reading a fictional story, presented paragraph by paragraph. Participants were instructed to treat the story as though they were reading a chapter or excerpt from a fictional

novel, and they were instructed to read the story at their own pace by clicking the button at the bottom of the page to advance to the next paragraph.

When the participant reached the end of the story, they were asked about their reading habits. Specifically, they were asked to report the types of fiction they have read in the past year (e.g., short story, novel, graphic novel, etc.) and how often they read fiction. This information was collected for demographic purposes, so that an assessment of the sample's reading habits might be made. They were also asked to report how much they enjoyed the story (on a 5-point scale with 5 signifying that they "really liked it"), and under which genre they would classify the story (i.e., comedy vs. drama). These questions were included to verify that the story was interesting, relatable, and engaging. Finally, to help ensure that they actually understood the gist of the story and did not skip through it, they were asked to give the story a title. Following completion of these tasks, participants advanced to the memory portion of the experiment.

First, participants completed the Character Recall. In this task, they were asked to freely recall the names of as many characters as they could. If they could not remember a character's name, they were asked to give a simple description, such as a role or occupation. The number of correctly recalled character names or descriptions was scored for each participant.

Before beginning the next task, Attribute Recall, participants had been assigned to either the memory or imagination group using a simple counterbalancing procedure. Instructions for Attribute Recall for both the memory and imagination group were identical, with one important exception. In the memory group, participants were told, "Please stay true to what was explicitly stated in the story." In the imagination group, participants were told, "Don't worry about whether the story explicitly states these characteristics or not; rely on the imagined representation in your head."

After reading the instructions for their group (i.e., memory vs. imagination), participants moved on to Attribute Recall. In this task, they were asked to remember each character's individual attributes. They were given the character's name as well as a short descriptor (for example, "class instructor" was given for Professor Gilmore and "college student" was given for Nevin) and they were asked to recall characteristics and traits belonging to that character. The characters were probed in the order in which they first appeared in the story. Using a counterbalancing procedure, participants had been assigned to either the free recall, cued recall, or multiple-choice condition.

In the free recall condition, participants were asked to list as many internal and external characteristics about the character as possible. Each response was scored for correct recalls (i.e., answers which directly or closely matched a trait given in the story), contradictions (i.e., answers which directly contradicted a trait given in the story), and elaborations (i.e., answers for traits which had not been given in the story or information above and beyond the given traits). For example, Naomi's hair color is described as "dark" and having "faint purple streaks." Correct recalls would include either of those two descriptions or some combination of the two, such as "dark hair with purple." Contradictions would include answers such as "blonde" or "brown." In contrast, for Naomi's age, which is not given, any response would be scored as an elaboration. Another example of possible elaborations could be based on the character's race/ethnicity. Andrea is described as white. If a participant reported that Andrea was Irish-American, then that would also be both a correct recall and an elaboration. This is a correct recall because the participant remembered that she was white, but it is also an elaboration because they provided additional detail not present in the story.

In the cued recall condition, participants were asked to give each character's age, hair color, hair style/length, height, race, whether they wore glasses, eye color, and body shape, in that order. Participants in the memory group were instructed to respond "x" if the cued trait was not present in the story or "Do not remember" if they could not recall. Participants in the imagination group were instructed to respond "n/a" if the cued trait was not present in their representation. Correct recalls, contradictions, and elaborations were scored in a similar fashion to the free recall answers. Additionally, participants were asked to describe each character's clothing and general personality, but those were not scored for this thesis.

In the multiple-choice condition, participants were asked to give the same traits in the same order, but they were given multiple-choice questions and asked to choose the one which best applies (see Appendix C for multiple-choice items). For each question, participants in the memory group were given the option to select "Not present in the story" or "Do not remember," while participants in the imagination group were given the option to select "Not present in my representation." In this condition, there was only one possible correct answer for each question (including the "Not present" option where applicable), which was scored as a correct recall. Any other answer was scored as a contradiction. However, if the trait had not been given in the story, then any answer given other than "Not present" was scored as an elaboration. Participants were asked to describe clothing in an open-ended response. They then rated the characters on the following personality traits: outgoingness, niceness, agreeableness, conscientiousness, creativity, self-confidence, and intelligence (in that order). Each personality trait was rated on a 5-point scale with higher numbers signifying higher scores on that trait. Again, these clothing and personality measures were not scored for this thesis.

Following completion of the memory tasks, participants were asked to indicate a celebrity who could best portray each character. If the participants could not remember a celebrity's name, they were asked to give a specific description (e.g., "the actor who plays Gale in *The Hunger Games*"). Additionally, they were asked to rate how well that celebrity fits with the character on a 5-point Likert-type scale with 5 being a "perfect fit" and 1 being "not a good fit at all." The purpose of including this task was to examine whether participants reported actors who shared traits with the story characters. The consistency of traits across all actors reported for a specific character can be examined to look for commonalities between those actors and consistency with the story character descriptions. These responses were not scored as part of this thesis, though these responses may be utilized in possible follow-up studies.

Following completion of all tasks, participants were debriefed, given an opportunity to ask questions about the experiment, and granted credit for a psychology course.

Results

Free Recall

Idea units within the participants' responses were scored (by three raters) as correct recalls, contradictions, or elaborations. A correct recall was scored if the participant correctly named a given trait (e.g., "red hair," "redhead," and "ginger" would all be correct recalls for the character Andrea). Contradictions were scored when a participant gave a trait that conflicted with a given trait (e.g., "black hair" would be a contradiction for Andrea, who had red hair). Lastly, elaborations were scored if the participant named a trait which had not been present in the story (e.g., "blue eyes" would be an elaboration for Andrea, as Andrea's eye color was never mentioned in the text). All statistics reported below represent per-character averages on these

three dependent variables. Responses scored by the three raters had the following Cronbach's alphas: 0.978 for correct recalls, 0.876 for contradictions, and 0.735 for elaborations.

For each of these dependent variables, a 2x2 mixed analysis of variance was conducted. The between-subjects factor was instruction (levels: memory, imagination) and the within-subjects factor was character type (levels: major, minor). As a reminder, it was predicted that the memory group would have more correct recalls, but fewer contradictions and elaborations relative to the imagination group. It was also predicted that major characters would produce more correct recalls with fewer contradictions and elaborations relative to minor characters. Lastly, an interaction between instruction and character type was expected, such that minor – though not major – characters would produce greater contradictions and elaborations among participants in the imagination group.

Correct Recalls. For correct recalls (see Figure 1), there was no main effect of instruction, $F(1, 65) = 1.109$, $MSE = 0.811$, $p = 0.296$, $\eta_p^2 = 0.017$; the memory group ($M = 1.017$, $SE = 0.109$) did not differ from the imagination group ($M = 0.853$, $SE = 0.111$). This did not conform to the hypothesis that the memory group would outperform their imagination counterparts on correct recalls, and it may reflect a tendency for readers to remain true to the text where possible. There was, however, a significant main effect of character type, $F(1, 65) = 4.548$, $MSE = 0.219$, $p = 0.037$, $\eta_p^2 = 0.065$; participants made a greater number of correct recalls for minor characters ($M = 1.022$, $SE = 0.068$) than major characters ($M = 0.851$, $SE = 0.104$). This effect was in the opposite of the expected direction, as it was believed that major characters would be more memorable. It is possible that this effect occurred due to the uneven distribution of major and minor characters in Experiment 1, giving more weight to the minor characters than originally intended. Because there were seven minor characters and only two major characters,

there was less variability in the per-character averages for the minor characters, as reflected by the smaller standard error for that group. If participants failed to correctly recall one of the major characters, it had a stronger effect on their average than if they failed to recall a single minor character. Finally, there was no significant interaction between instruction and character type, $F(1, 65) = 0.735$, $MSE = 0.219$, $p = 0.394$, $\eta_p^2 = 0.011$.

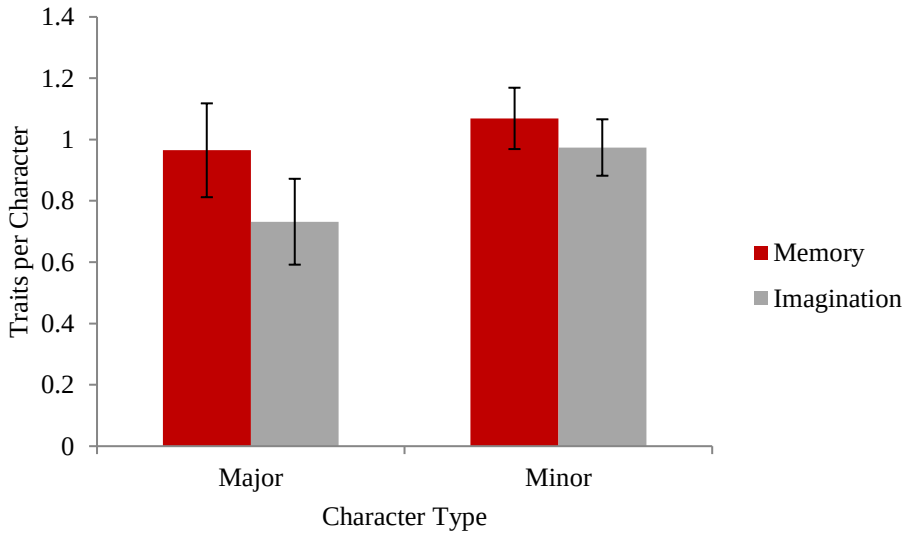

Figure 1. Correctly recalled traits per character by character type and instruction (Experiment 1 Free Recall).

Contradictions. For contradictions (see Figure 2), there was no main effect of instruction, $F(1, 65) = 0.993$, $MSE = 0.052$, $p = 0.323$, $\eta_p^2 = 0.015$; the memory group ($M = 0.115$, $SE = 0.025$) did not differ from the imagination group ($M = 0.155$, $SE = 0.031$). Here, a difference between groups was expected, with the imagination group making more contradictions than the memory group; however, the overall low rate of contradictions being made might have washed out any observable differences. There was a significant main effect of

character type, $F(1, 65) = 10.531$, $MSE = 0.030$, $p = 0.002$, $\eta_p^2 = 0.139$; participants made more contradictions for major characters ($M = 0.184$, $SE = 0.032$) than minor characters ($M = 0.085$, $SE = 0.015$). This effect makes intuitive sense: as major characters have more given traits, they also present more possibilities for contradictions to be made. There was a marginally significant interaction between instruction and character type, $F(1, 65) = 3.222$, $MSE = 0.030$ $p = 0.077$, $\eta_p^2 = 0.047$. For major characters, the memory group ($M = 0.191$, $SE = 0.047$) and imagination group ($M = 0.177$, $SE = 0.044$) performed similarly, $t(65) = 0.228$, $p = 0.820$; however, for minor characters the imagination group continued to make contradictions ($M = 0.133$, $SE = 0.026$) while the memory group made comparatively fewer ($M = 0.039$, $SE = 0.013$), $t(65) = 3.287$, $p = 0.002$. It is possible that this interaction was only marginally significant due to the overall low rate of contradictions being made among both groups.

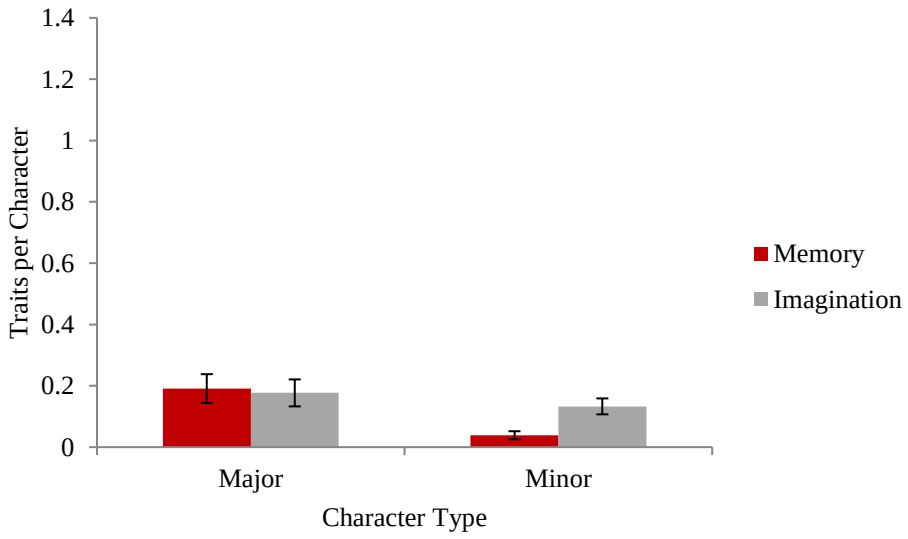

Figure 2. Contradicted traits per character by character type and instruction (Experiment 1 Free Recall).

Elaborations. For elaborations (see Figure 3), there was neither a main effect of instruction, $F(1, 65) = 2.435$, $MSE = 0.051$, $p = 0.124$, $\eta_p^2 = 0.036$, nor character type, $F(1, 65) = 0.005$, $MSE = 0.024$, $p = 0.944$, $\eta_p^2 = 0.000$. The memory ($M = 0.118$, $SE = 0.023$) and imagination groups ($M = 0.179$, $SE = 0.032$) performed similarly, and the rates of elaborations did not differ across major ($M = 0.149$, $SE = 0.028$) or minor characters ($M = 0.146$, $SE = 0.020$). As with contradictions, the failure to detect differences across these variables may be due to low response rates for elaborations. There was, however, a significant interaction between instruction and character type, $F(1, 65) = 4.567$, $MSE = 0.024$, $p = 0.036$, $\eta_p^2 = 0.066$; for major characters, the number of elaborations between the memory ($M = 0.147$, $SE = 0.036$) and imagination groups ($M = 0.151$, $SE = 0.045$) was the same, $t(65) = 0.074$, $p = 0.941$; for minor characters, the memory group made comparatively fewer elaborations ($M = 0.088$, $SE = 0.019$) while the imagination group made significantly more ($M = 0.206$, $SE = 0.031$), $t(65) = 3.240$, $p = 0.002$. This supported the hypothesis that the imagination group would elaborate significantly more for minor characters, as much more detail is needed to form a full representation of these characters than was provided by the text.

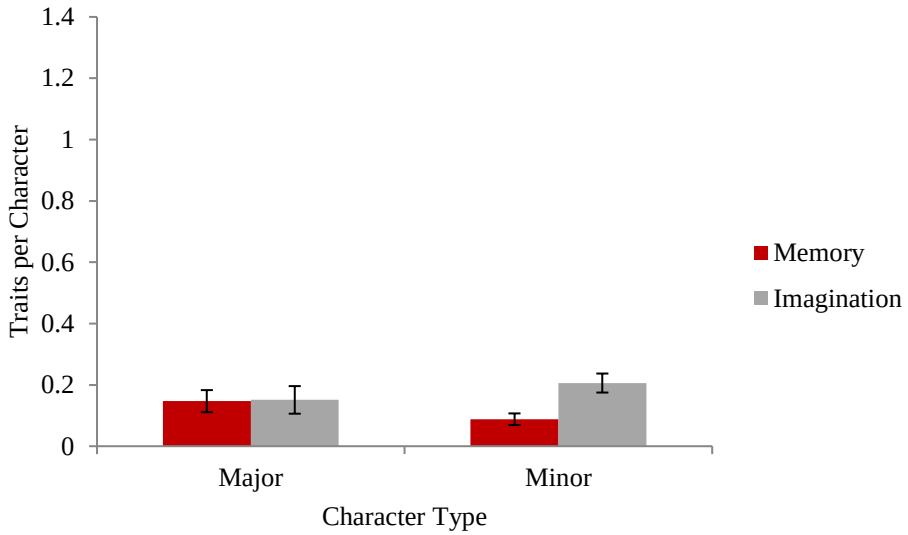

Figure 3. Elaborated traits per character by character type and instruction (Experiment 1 Free Recall).

It should be noted that, overall, the number of traits recalled in this free recall condition was quite low; this is especially true when considering the number of possible traits that participants could possibly recall (4.222 traits per character, on average). This low recall rate may have contributed to the number of null patterns that were observed. However, this is not uncommon as recall tends to be more difficult than recognition (Luh, 1922). Because of the nature of the memory tasks, it was expected that more traits would be reported in the following memory tests (i.e., cued recall and multiple-choice), allowing some of the predicted patterns to emerge.

Cued Recall

As with free recall, participants' answers to the physical attribute questions were scored as correct recalls, contradictions, or elaborations. The scoring criteria remained the same as in

the free recall condition, with one new addition: a correct recall was scored if the participant correctly identified a trait as not being present in the story. The same analyses were conducted on each of these dependent variables, and the hypotheses remained the same as in the free recall condition. The same raters scored these responses, with the following Cronbach's alphas: 0.929 for correct recalls, 0.879 for contradictions, and 0.981 for elaborations.

Correct Recalls. For correct recalls (see Figure 4), there was a significant main effect of instruction, $F(1, 69) = 5.649$, $MSE = 3.182$, $p = 0.020$, $\eta_p^2 = 0.076$; the memory group ($M = 3.828$, $SE = 0.192$) outperformed the imagination group ($M = 3.099$, $SE = 0.238$). This supported the hypothesis that the memory group would be more accurate than their imagination group peers. There was also a significant main effect of character type, $F(1, 69) = 15.248$, $MSE = 0.375$, $p = 0.000$, $\eta_p^2 = 0.181$, such that minor characters produced greater correct recalls ($M = 3.669$, $SE = 0.172$) than major characters ($M = 3.258$, $SE = 0.151$). In this case, the effect might have been driven by the option that allowed participants to identify traits that were not present in the story. Because the minor characters had fewer traits, there were more opportunities for participants to respond "not present," which is a relatively simple identification. Thus, the correct recall averages might be somewhat inflated overall – though being able to identify the absence of a trait is a key distinction if one is attempting to limit elaborations, as is the case with the memory group. There was no significant interaction between instruction and character type, $F(1, 69) = 0.228$, $MSE = 0.085$, $p = 0.635$, $\eta_p^2 = 0.003$.

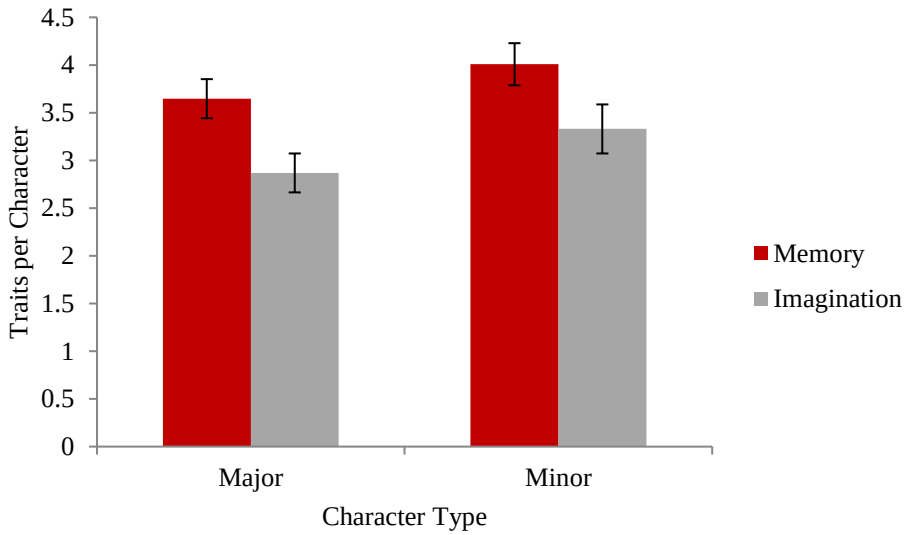

Figure 4. Correctly recalled traits per character by character type and instruction (Experiment 1 Cued Recall).

Contradictions. For contradictions (see Figure 5), there was a significant main effect of instruction, $F(1, 69) = 11.740$, $MSE = 0.454$, $p = 0.001$, $\eta_p^2 = 0.145$, such that the imagination group ($M = 1.409$, $SE = 0.090$) made more contradictions than the memory group ($M = 1.012$, $SE = 0.073$). This was in line with the original prediction that the imagination group would be less beholden to the text and thus make greater contradictions. Moreover, there was a significant main effect of character type, $F(1, 69) = 18.490$, $MSE = 0.201$, $p < 0.001$, $\eta_p^2 = 0.211$. In this case, major characters ($M = 1.376$, $SE = 0.082$) produced more contradictions than minor characters ($M = 1.045$, $SE = 0.055$). As before, this effect seems intuitive; by virtue of their greater number of traits, major characters are more open to the possibility of contradiction. Lastly, there was a significant interaction between instruction and character type, $F(1, 69) = 7.338$, $MSE = 0.201$, $p = 0.009$, $\eta_p^2 = 0.096$. For major characters, the memory group ($M = 1.074$, $SE = 0.094$) made significantly fewer contradictions than the imagination group ($M = 1.679$, SE

= 0.143), $t(69) = 3.699$, $p < 0.001$; for minor characters, the memory ($M = 0.951$, $SE = 0.064$) and imagination groups ($M = 1.140$, $SE = 0.093$) did not significantly differ, $t(69) = 1.727$, $p = 0.089$. The imagination group made many contradictions for major characters, reflecting a willingness to ignore textual information in favor of their own personal interpretations; the effect is absent among minor characters simply because there is less information to contradict.

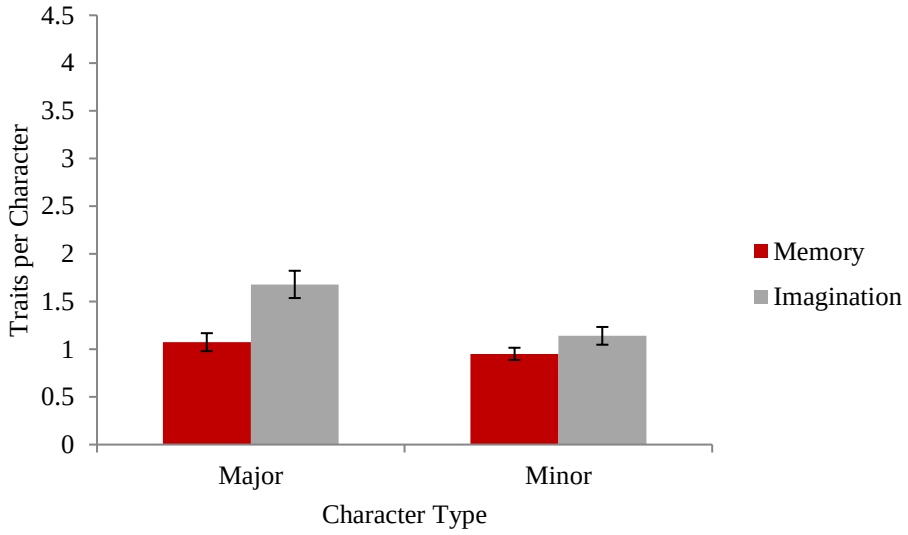

Figure 5. Contradicted traits per character by character type and instruction (Experiment 1 Cued Recall).

Elaborations. For elaborations (see Figure 6), there was a significant main effect of instruction, $F(1, 69) = 9.139$, $MSE = 3.276$, $p = 0.004$, $\eta_p^2 = 0.117$, such that the imagination group made more elaborations ($M = 2.829$, $SE = 0.242$) than the memory group ($M = 1.890$, $SE = 0.195$). This supports the hypothesis that the imagination group would be more apt to provide additional detail in the absence of textual information. There was no significant main effect of character, $F(1, 69) = 2.486$, $MSE = 0.326$, $p = 0.119$, $\eta_p^2 = 0.035$. Neither major ($M = 2.437$, $SE = 0.149$) nor minor characters ($M = 2.282$, $SE = 0.176$) differed in the number of elaborations.

The interaction between instruction and character type was significant, $F(1, 69) = 15.354$, $MSE = 0.326$, $p = 0.000$, $\eta_p^2 = 0.182$. The number of elaborations for major characters varies little from the memory ($M = 2.156$, $SE = 0.188$) and imagination groups ($M = 2.714$, $SE = 0.230$), being marginally significant, $t(69) = 1.866$, $p = 0.066$, whereas minor characters see a sharp increase in elaborations from the memory ($M = 1.620$, $SE = 0.198$) to imagination group ($M = 2.944$, $SE = 0.313$), $t(69) = 3.761$, $p < 0.001$. Because minor characters are open to interpretation, many elaborations are observed in the imagination relative to the memory group.

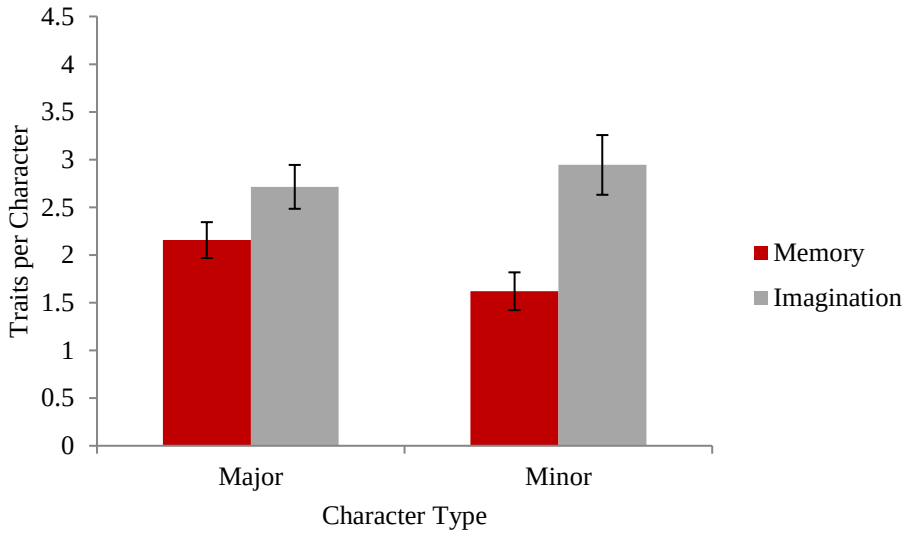

Figure 6. Elaborated traits per character by character type and instruction (Experiment 1 Cued Recall).

Multiple-Choice

The same scoring and analysis procedure as the cued recall condition was employed in the multiple-choice answers. Again, the predictions did not change from those stated in the free

recall condition, and the same raters scored these responses. The Cronbach's alphas were 0.946 for correct recalls, 0.850 for contradictions, and 0.847 for elaborations.

Correct Recalls. For correct recalls (see Figure 7), there was no significant main effect of instruction, $F(1, 81) = 1.901$, $MSE = 1.827$, $p = 0.172$, $\eta_p^2 = 0.023$; the memory ($M = 3.355$, $SE = 0.146$) and imagination groups ($M = 3.065$, $SE = 0.151$) did not differ. Again, this reflected both groups' ability to accurately recall information from the text. There was, however, a significant main effect of character type, $F(1, 81) = 26.209$, $MSE = 0.379$, $p < 0.001$, $\eta_p^2 = 0.244$, such that major characters produced more correct recalls ($M = 3.455$, $SE = 0.112$) when compared to minor characters ($M = 2.965$, $SE = 0.118$). This supported the original hypothesis that major characters would be more memorable, resulting in greater correct recalls when compared to minor characters. There was no significant interaction between instruction and character type, $F(1, 81) = 1.614$, $MSE = 0.379$, $p = 0.208$, $\eta_p^2 = 0.020$.

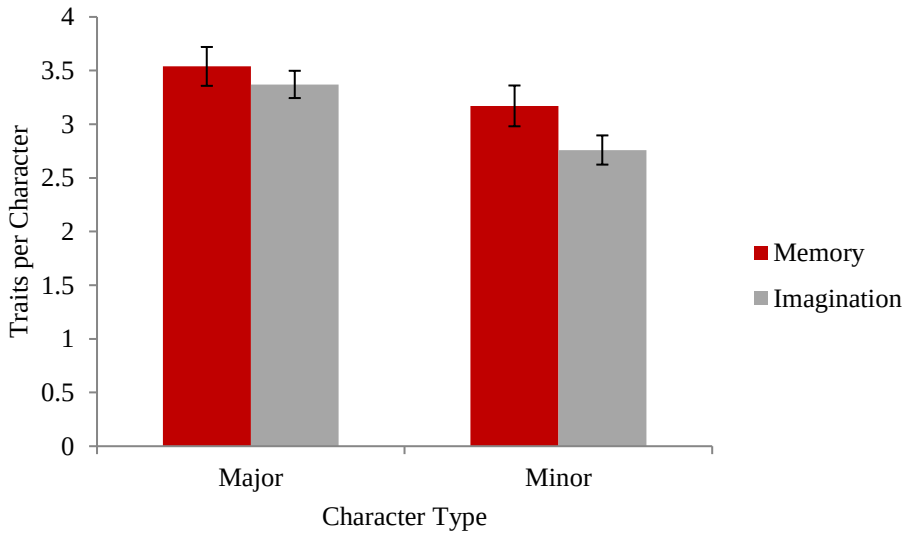

Figure 7. Correctly recalled traits per character by character type and instruction (Experiment 1 Multiple-Choice).

Contradictions. For contradictions (see Figure 8), there was a significant main effect of instruction, $F(1, 81) = 25.323$, $MSE = 0.444$, $p < 0.001$, $\eta_p^2 = 0.238$, such that the imagination group made more contradictions ($M = 2.055$, $SE = 0.075$) than the memory group ($M = 1.534$, $SE = 0.072$). This supported the hypothesis that the memory group would follow instructions and generally refrain from reporting inaccurate information; thus, they should make fewer contradictions. There was neither a significant main effect of character type, $F(1, 81) = 2.587$, $MSE = 0.244$, $p = 0.112$, $\eta_p^2 = 0.031$, nor an interaction between instruction and character type, $F(1, 81) = 0.051$, $MSE = 0.244$, $p = 0.822$, $\eta_p^2 = 0.001$. Both major ($M = 1.856$, $SE = 0.074$) and minor characters ($M = 1.733$, $SE = 0.053$) produced a similar number of contradictions. The ability to recognize the correct answer among the multiple-choice options may have lowered the

contradiction rate for major characters down to the minor characters' level, so as to erase the disadvantage seen in the free recall and cued recall conditions.

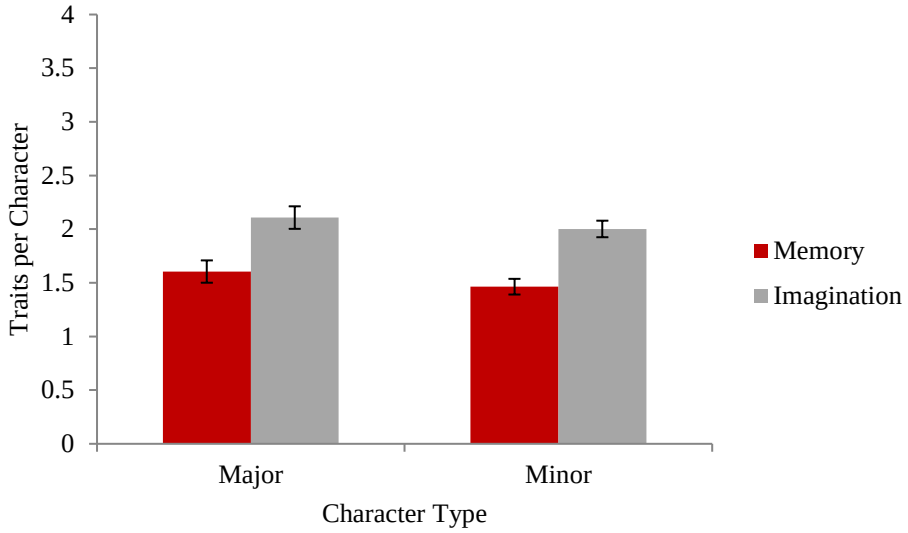

Figure 8. Contradicted traits per character by character type and instruction (Experiment 1 Multiple-Choice).

Elaborations. For elaborations (see Figure 9), there was a significant main effect of instruction, $F(1, 81) = 63.157$, $MSE = 1.024$, $p < 0.001$, $\eta_p^2 = 0.438$, such that the imagination group made more elaborations ($M = 2.832$, $SE = 0.113$) than the memory group ($M = 1.583$, $SE = 0.109$). This supported the hypothesis that the imagination group would create fuller representations and thus provide more detail than was given in the text. There was a marginally significant main effect of character type, $F(1, 81) = 3.719$, $MSE = 0.130$, $p = 0.057$, $\eta_p^2 = 0.044$, with minor characters ($M = 2.261$, $SE = 0.086$) produced slightly more elaborations than major characters ($M = 2.153$, $SE = 0.081$). However, the difference was likely too slight to reach significance. Lastly, there was a significant interaction between instruction and character type, $F(1, 81) = 36.481$, $MSE = 0.130$, $p < 0.001$, $\eta_p^2 = 0.311$. For major characters, the number of

elaborations increased from the memory (M = 1.698, SE = 0.121) to imagination group (M = 2.608, SE = 0.105), $t(81) = 5.632$, $p < 0.001$; while for minor characters, the number of elaborations rose even more sharply from the memory (M = 1.467, SE = 0.115) to imagination group (M = 3.055, SE = 0.129), $t(81) = 9.326$, $p < 0.001$. Again, this supported the hypothesis that the imagination group would provide additional detail above and beyond the text in order to make representations of the minor characters.

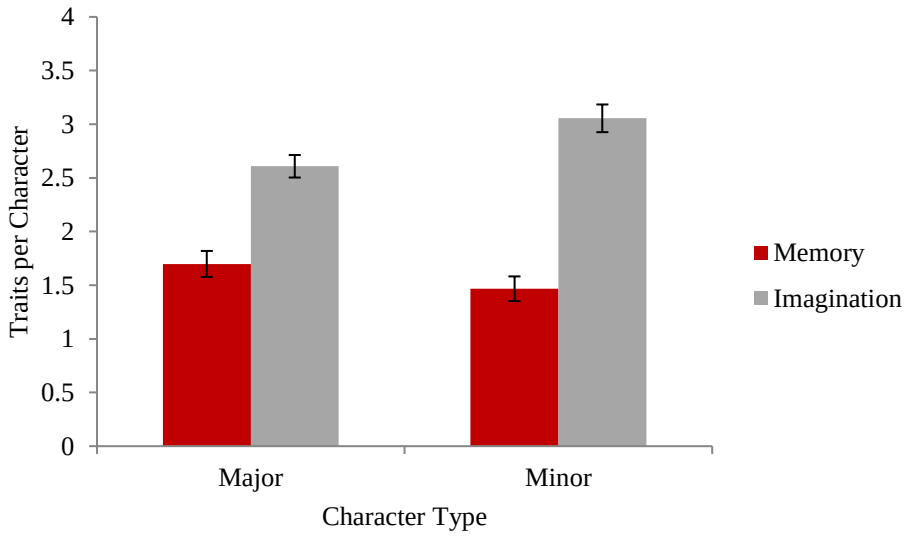

Figure 9. Elaborated traits per character by character type and instruction (Experiment 1 Multiple-Choice).

Discussion

In summary, Experiment 1 produced an interesting pattern of results that mostly fell in line with the original hypotheses. In the free recall condition, overall rate of responding was fairly low; as a result, the instruction manipulation did not produce any significant results. It is possible that readers' representations of character are not as vivid as originally believed. The instruction manipulation was only successful in the cued recall and multiple-choice conditions,

suggesting that perhaps visualizing a character is more of a reconstructive process; when probed for specific attributes, the memory group limited their responding per the instructions, producing fewer contradictions and elaborations than their imagination group peers. Regardless of the limited number of responses, the interactions in Experiment 1 show that readers are willing and capable of generating fuller character representations when encouraged to do so. In all three conditions, the imagination group produced significantly more elaborations for the minor characters, and they also produced significantly more contradictions for those characters in two of the three conditions. When they were given an incomplete character and free rein to give as much detail as they liked, they tended to produce more information, regardless of its textual accuracy.

CHAPTER 4

EXPERIMENT 2

In Experiment 1, in an attempt to simply create a naturalistic story, the distribution of physical attributes among the characters was random and unstructured. The goal of Experiment 2 was to introduce an element of control and manipulation to these attributes. The same story, memory probe types, and instruction types (i.e., memory only vs. imagination) from Experiment 1 were used. The story introduced the same nine characters, this time with an ordered distribution of physical attributes: three characters with eight physical attributes described, three characters with four attributes, and three characters with no description of physical attributes at all. Three versions of the story were created so that each character appeared in each group once – these versions were counterbalanced across participants. Thus, unlike Experiment 1's focus on major vs. minor characters, the focus of Experiment 2 was to compare characters based on the number of attributes described. The plot, character interactions, and dialogue remained identical across all three versions of the story. The versions were only differentiated by the varied presence or absence of physical description information about each character upon their introduction. In some cases, a character's particular trait (e.g., hair color) was mentioned more than once throughout the story. In the interest of maintaining experimental control of the attributes, these repeated mentions were removed. If that trait was not given in a particular version, then all references to that trait were removed. Otherwise, descriptions remained consistent within each story. Additionally, descriptions that were included were consistent across all versions – for example, Andrea's hair color was described as "red" in both the version where she received eight descriptions and the version where she received only four.

As in Experiment 1, it was hypothesized that instruction type would have an effect on participants' reporting of information. Participants in the memory only condition should show higher accuracy, fewer contradictions, and fewer elaborations as compared to participants in the imagination condition. This would replicate the findings of Experiment 1 and support the idea that readers construct two representations and possess the ability to select information from a representation of their choice. Also, as in Experiment 1, it was hypothesized that accuracy would increase as the type of memory probe became more structured (i.e., free recall as least accurate, multiple-choice as most accurate). Similarly, contradictions and elaborations would decrease with an increasing level of probe structure. Again, this would replicate the findings of Experiment 1.

It was hypothesized that in each version of the story, the half-described characters will generate the highest proportion of contradictions. Kole and Healy (2007) demonstrated that successful recall of character traits relies strongly on the ability to integrate those traits. Because the half-described characters do not present enough information for a complete representation, readers should struggle to integrate the presented attributes, thus affecting later recall. Although the fully described characters have more potential for contradictions (because every trait could be contradicted), they should be so well described that their traits remain more salient than those of the half-described characters. Additionally, participants in the imagination group should show greater contradictions for the fully described characters as compared to participants in the memory group, even though both groups will have received the same amount of information on those characters. Because the imagination group is told to rely on their personal representation of the characters, they may throw out given traits from the story in favor of their own.

Method

Participants

A total of 438 participants (291 women, 147 men, M_{age} = 21.087 years, age range: 18 - 44 years) were recruited from psychology courses at the University of Nevada, Las Vegas using the subject pool. In return for their participation, participants were awarded research credits towards their course requirements and extra credit. All participants were required to be fluent in English. Participants with reading disabilities were excluded from participation.

Materials and Procedure

Participants read one of three new versions of the story from Experiment 1 (Version A: 52 paragraphs, 7090 words; Version B: 52 paragraphs, 7026 words; Version C: 52 paragraphs, 7011 words; see Appendix A for a complete version of the story, as well as excerpts from the other two versions). The three versions were identical to one another and the version from Experiment 1 in terms of plot, the events that occur, the order that characters are introduced, and the extent to which each character was involved in each event. For example, Professor Gilmore was always the first character described, and he was always involved in the opening and closing scenes in the story. The only differences between the versions were the number of physical descriptions given for each character upon their introduction.

Over the course of the story, the same nine named characters from Experiment 1 were introduced. In each version of the story, characters fall into one of three conditions: three of these characters include a description of eight physical attributes (i.e., age, hair color, hair length, height, race, glasses, eye color, and body shape), three characters have four attributes described (chosen at random from the previous list of eight), and three characters have no physical attributes described (see Appendix B for the complete breakdown for all three versions). The versions are counterbalanced such that each character appears in each condition (i.e., eight

attributes, four attributes, zero attributes) exactly once. The physical descriptions are consistent between versions (e.g., Nevin has “sandy brown” hair in both the eight and four conditions, but no hair color is described in the no description condition).

As in Experiment 1, participants were seated in a cubicle at a computer and all experimental materials were administered using Qualtrics survey software. Participants had been assigned to one of the three versions of the story using a simple counterbalancing procedure. Neither the instructions nor the memory tests differed depending on the version. After the informed consent process, basic demographic information was collected (i.e., age, gender). Participants were then instructed that they would be reading a fictional story, presented paragraph by paragraph. Participants were instructed to treat the story as though they were reading a chapter or excerpt from a fictional novel, and they were instructed to read the story at their own pace by clicking the button at the bottom of the page to advance to the next paragraph. Upon completion of the story, participants completed the same tasks as those in Experiment 1, with one exception: the celebrity naming task had been removed from the materials. Otherwise, participants in Experiment 2 completed the reading habits questionnaire, Character Recall, and Attribute Recall in the same manner as Experiment 1. The memory probe and instruction manipulations were also present, in addition to the new story version manipulation. All assignments were performed using a simple counterbalancing procedure. Responses on Attribute Recall were scored the same way as Experiment 1 (i.e. correct recalls, elaborations, and contradictions).

Following completion of all tasks, participants were debriefed, given an opportunity to ask questions about the experiment, and granted credit for a psychology course.

Results

Free Recall

The same scoring and analysis procedures were employed in Experiment 2 as in Experiment 1. Unlike Experiment 1, however, characters were divided into three categories according to the number of given traits: eight traits (complete), four traits (partial), or zero traits (none). Moreover, because Experiment 2 included three versions of the story, story version was included in all analyses as a between-subjects factor. Idea units within participants' free recall responses were scored as correct recalls, contradictions, or elaborations. All statistics reported below represent per-character averages on these three dependent variables. Responses were scored by three raters, with the following Cronbach's alphas: 0.849 for correct recalls, 0.919 for contradictions, and 0.946 for elaborations.

Correct Recalls. For correct recalls (see Figure 10), there was no significant main effect of instruction, $F(1, 121) = 1.425$, $MSE = 1.751$, $p = 0.235$, $\eta_p^2 = 0.012$; the memory group ($M = 1.286$, $SE = 0.096$) and imagination group ($M = 1.124$, $SE = 0.096$) did not differ in the amount of correctly recalled information; nor was there a significant main effect of story version, $F(2, 121) = 0.424$, $MSE = 1.751$, $p = 0.655$, $\eta_p^2 = 0.007$ as story version A ($M = 1.124$, $SE = 0.119$), version B ($M = 1.214$, $SE = 0.117$) and version C ($M = 1.277$, $SE = 0.117$) all produced similar numbers of correct recalls. Instruction and story version did not interact, $F(2, 121) = 0.333$, $MSE = 1.751$, $p = 0.717$, $\eta_p^2 = 0.005$. There was, however, a significant main effect of character type, $F(2, 242) = 107.656$, $MSE = 0.418$, $p < 0.001$, $\eta_p^2 = 0.471$; post hoc comparisons using the Bonferroni correction indicated that complete characters ($M = 1.664$, $SE = 0.112$) had significantly more correct recalls than the partial characters ($M = 1.420$, $SE = 0.080$), $t(126) = 3.182$, $p < 0.005$, and the partial characters had significantly more correct recalls than the none

characters (M = 0.532, SE = 0.037), $t(126) = 13.466$, $p < 0.001$. Due to the manipulation of traits present in Experiment 2, it makes intuitive sense that participants correctly recall the most for complete characters (for whom there are highest number of traits to recall) and the least for none characters (for whom no traits are available to recall).

There was neither an interaction between character type and instruction, $F(2, 242) = 1.480$, $MSE = 0.418$, $p = 0.230$, $\eta_p^2 = 0.012$, nor character type and story version, $F(4, 242) = 1.429$, $MSE = 0.418$, $p = 0.225$, $\eta_p^2 = 0.023$.

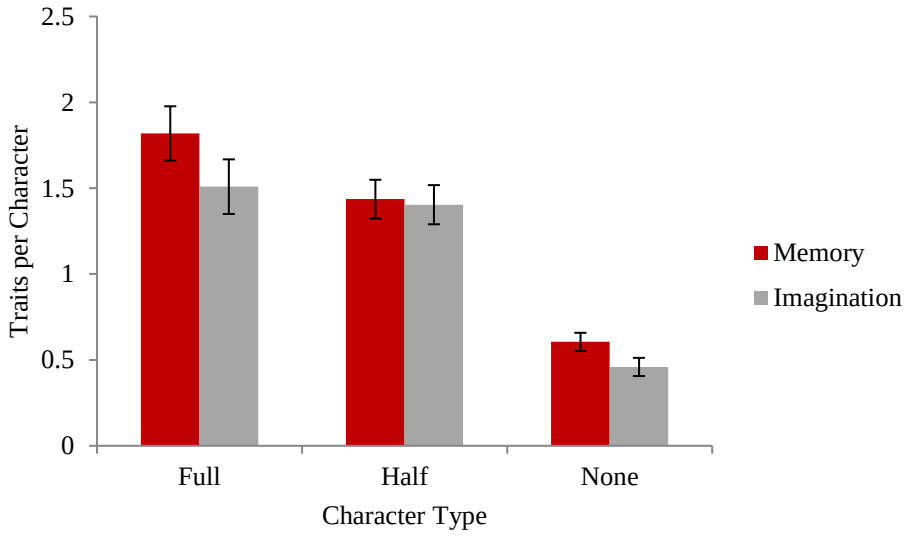

Figure 10. Correctly recalled traits per character by character type and instruction (Experiment 2 Free Recall).

Contradictions. For contradictions (see Figure 11), there was a significant main effect of instruction, $F(1, 121) = 5.190$, $MSE = 0.027$, $p = 0.024$, $\eta_p^2 = 0.041$; the imagination group (M = 0.064, SE = 0.012) made more contradictions than the memory group (M = 0.026, SE = 0.012). This fit the original hypothesis that the imagination group would take more liberties with recalling the text, even if it led to contradictory information. There was no significant main effect

of story version, $F(2, 121) = 1.495$, $MSE = 0.027$, $p = 0.228$, $\eta_p^2 = 0.024$; story version A ($M = 0.066$, $SE = 0.015$), version B ($M = 0.035$, $SE = 0.014$), and version C ($M = 0.035$, $SE = 0.014$) did not significantly differ on the number of contradictions made. Nor was there an interaction between instruction and story version, $F(2, 121) = 1.219$, $MSE = 0.027$, $p = 0.299$, $\eta_p^2 = 0.020$. However, there was a significant main effect of character type, $F(2, 242) = 10.373$, $MSE = 0.018$, $p < 0.001$, $\eta_p^2 = 0.079$; post hoc comparisons using the Bonferroni correction indicated that none characters ($M = 0.007$, $SE = 0.003$) significantly differed from both complete ($M = 0.084$, $SE = 0.020$), $t(126) = 3.640$, $p = 0.001$, and partial characters ($M = 0.045$, $SE = 0.010$), $t(126) = 3.694$, $p = 0.001$, though complete and partial characters did not differ from one another, $t(126) = 1.979$, $p = 0.121$. As before, this makes intuitive sense; none characters have no traits present and thus cannot be contradicted.

There was no interaction between character type and instruction, $F(2, 242) = 2.015$, $MSE = 0.018$, $p = 0.136$, $\eta_p^2 = 0.016$. There was an interaction between character type and story version, $F(4, 242) = 2.465$, $MSE = 0.018$, $p = 0.046$, $\eta_p^2 = 0.039$; although the global interaction was significant, post hoc comparisons using the Bonferroni correction revealed that there were no significant differences in any of the pairwise comparisons.

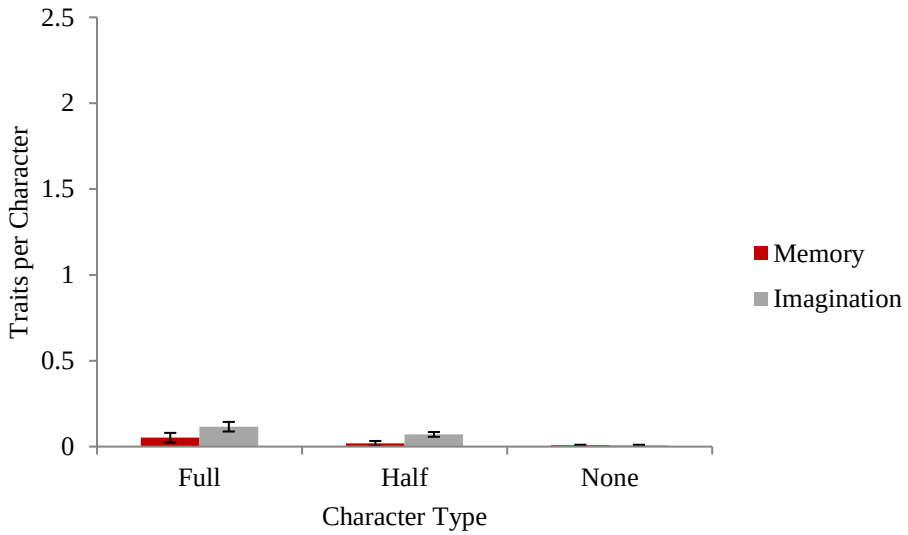

Figure 11. Contradicted traits per character by character type and instruction (Experiment 2 Free Recall).

Elaborations. For elaborations (see Figure 12), there was a significant main effect of instruction, $F(1, 121) = 7.616$, $MSE = 0.167$, $p = 0.007$, $\eta_p^2 = 0.059$, such that the imagination group ($M = 0.223$, $SE = 0.030$) made more elaborations than the memory group ($M = 0.108$, $SE = 0.029$). This supported the hypothesis that the imagination group would substitute missing detail and thus make more elaborations than their memory group counterparts. There was also a significant main effect of story version, $F(2, 121) = 5.292$, $MSE = 0.167$, $p = 0.006$, $\eta_p^2 = 0.080$; story version C ($M = 0.071$, $SE = 0.036$) significantly differed from both version A ($M = 0.203$, $SE = 0.037$) and version B ($M = 0.223$, $SE = 0.036$), though versions A and B did not significantly differ. There was no significant interaction between instruction and story version, $F(2, 121) = 0.634$, $MSE = 0.167$, $p = 0.532$, $\eta_p^2 = 0.010$. However, there was a significant main effect of character type, $F(2, 242) = 19.904$, $MSE = 0.096$, $p < 0.001$, $\eta_p^2 = 0.141$; post hoc comparisons using the Bonferroni correction indicated that complete characters ($M = 0.053$, $SE =$

0.008) significantly differed from partial characters (M = 0.148, SE = 0.020), $t(126) = 4.820$, $p < 0.001$, which significantly differed from none characters (M = 0.296, SE = 0.049), $t(126) = 3.145$, $p = 0.002$.

There was a significant interaction between character type and instruction, $F(2, 242) = 5.853$, $MSE = 0.154$, $p = 0.003$, $\eta_p^2 = 0.046$; for none characters, the imagination group (M = 0.452, SE = 0.099) made significantly more elaborations than the memory group (M = 0.137, SE = 0.024), $t(125) = 3.125$, $p = 0.002$. There was also a significant interaction between character type and story version, $F(4, 242) = 42.151$, $MSE = 0.154$, $p < 0.001$, $\eta_p^2 = 0.411$; post hoc comparisons using the Bonferroni correction revealed that for complete characters, version C (M = 0.003, SE = 0.003) significantly differed from both version A (M = 0.084, SE = 0.018), $t(82) = 4.661$, $p < 0.001$, and version B (M = 0.072, SE = 0.015), $t(84) = 4.663$, $p < 0.001$, though version A and B did not significantly differ. Additionally, for none characters, version C (M = 0.101, SE = 0.035) significantly differed from both version A (M = 0.320, SE = 0.064), $t(82) = 3.014$, $p = 0.003$, and version B (M = 0.460, SE = 0.132), $t(84) = 2.631$, $p = 0.010$.

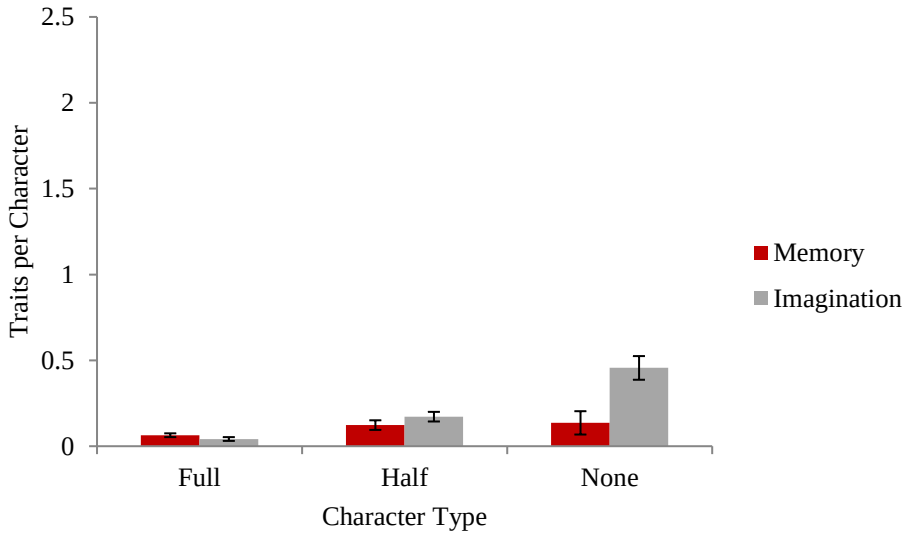

Figure 12. Elaborated traits per character by character type and instruction (Experiment 2 Free Recall).

Cued Recall

Scoring and analysis of cued recall responses in Experiment 2 mirrored the procedure in Experiment 1, aside from the inclusion of new elements such as multiple story versions and three character categories. As in Experiment 1, participants were given the option to report a trait as not being present; these responses were scored accordingly – correct recall if the trait was absent or contradiction if the trait was given. The hypotheses remained the same as in the free recall condition, and the same raters scored these responses. The Cronbach's alphas were 0.989 for correct recalls, 0.962 for contradictions, and 0.983 for elaborations.

Correct Recalls. For correct recalls (see Figure 13), there was a significant main effect of instruction, $F(1, 137) = 27.309$, $MSE = 3.908$, $p < 0.001$, $\eta_p^2 = 0.166$; the memory group ($M = 3.214$, $SE = 0.134$) made more correct recalls than the imagination group ($M = 2.216$, $SE =$

0.136). This supported the hypothesis that the memory group would remain true to the text and thus be more accurate. There was no significant main effect of story version, $F(2, 137) = 1.569$, $MSE = 3.908$, $p = 0.212$, $\eta_p^2 = 0.022$; story version A ($M = 2.887$, $SE = 0.167$), version B ($M = 2.483$, $SE = 0.167$), and version C ($M = 2.774$, $SE = 0.163$) all produced similar numbers of correct recalls. There was no significant interaction between instruction and story version, $F(2, 137) = 0.030$, $MSE = 3.908$, $p = 0.970$, $\eta_p^2 < 0.001$. There was a significant main effect of character type, $F(2, 274) = 88.282$, $MSE = 1.977$, $p < 0.001$, $\eta_p^2 = 0.392$; post hoc comparisons using the Bonferroni correction indicated that complete ($M = 3.838$, $SE = 0.125$), partial ($M = 2.679$, $SE = 0.100$), and none characters ($M = 1.628$, $SE = 0.172$) all significantly differed from one another, all t's > 6.000, $p < 0.001$.

There was a significant interaction between character type and instruction, $F(2, 274) = 62.036$, $MSE = 1.977$, $p < 0.001$, $\eta_p^2 = 0.312$; for complete characters, the imagination group ($M = 4.224$, $SE = 0.171$) made more correct recalls than the memory group ($M = 3.435$, $SE = 0.194$), $t(141) = 3.036$, $p = 0.003$. For partial characters, the memory group ($M = 3.102$, $SE = 0.169$) made more correct recalls than the imagination group ($M = 2.268$, $SE = 0.115$), $t(141) = 4.057$, $p < 0.001$. Lastly, for none characters, the memory group ($M = 3.105$, $SE = 0.331$) made more correct recalls than the imagination group ($M = 0.162$, $SE = 0.041$), $t(141) = 8.646$, $p < 0.001$. It is possible that the memory group proved more accurate for the partial and none characters because the imagination group supplanted the textual information with their own contradictions and elaborations. There was also a significant interaction between character type and story, $F(4, 274) = 5.003$, $MSE = 1.977$, $p = 0.001$, $\eta_p^2 = 0.068$; post hoc comparisons using the Bonferroni correction indicated that for complete characters, version A ($M = 4.478$, $SE = 0.175$) significantly differed from both version B ($M = 3.643$, $SE = 0.256$), $t(92) = 2.687$, $p = 0.009$, and

version C (*M* = 3.363, *SE* = 0.227), *t*(94) = 3.861, *p* < 0.001, though B and C did not significantly differ. In version A, the complete characters were the main characters, so it makes sense that participants would remember them more clearly than when minor characters were fully described, as in versions B and C. Additionally, for partial characters, version C (*M* = 3.191, *SE* = 0.179) significantly differed from both version A (*M* = 2.468, *SE* = 0.156), *t*(94) = 3.037, *p* = 0.003, and version B (*M* = 2.402, *SE* = 0.206), *t*(94) = 2.902, *p* = 0.005, though A and B did not significantly differ. Again, the partial characters in version C were the major characters, and the participants showed a preference for remembering their information over other characters in the story.

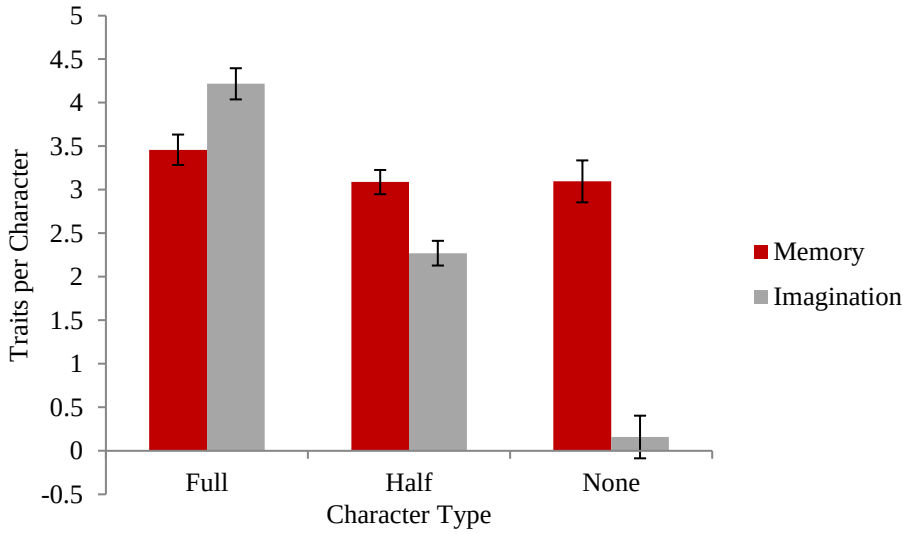

Figure 13. Correctly recalled traits per character by character type and instruction (Experiment 2 Cued Recall).

Contradictions. For contradictions (see Figure 14), there was no significant main effect of instruction, *F*(1, 137) = 3.092, *MSE* = 1.732, *p* = 0.081, η_p^2 = 0.022; the memory group (*M* = 1.502, *SE* = 0.089) made a similar number of contradictions as the imagination group (*M* =

1.725, *SE* = 0.091). Moreover, there was no significant main effect of story, $F(2, 137) = 0.006$, $MSE = 1.732$, $p = 0.994$, $\eta_p^2 < 0.001$; story version A ($M = 1.603$, $SE = 0.111$), version B ($M = 1.620$, $SE = 0.111$), and version C ($M = 1.618$, $SE = 0.109$) all produced similar rates of contradictions. There was no significant interaction between instruction and story version, $F(2, 137) = 1.983$, $MSE = 1.732$, $p = 0.142$, $\eta_p^2 = 0.028$. There was a significant main effect of character type, $F(2, 274) = 384.348$, $MSE = 0.805$, $p < 0.001$, $\eta_p^2 = 0.737$; complete ($M = 3.139$, $SE = 0.133$), partial ($M = 1.501$, $SE = 0.074$), and none characters ($M = 0.200$, $SE = 0.010$) all significantly differed from one another, all t's > 14.000, $p < 0.001$.

There was no significant interaction between character type and instruction, $F(2, 274) = 1.327$, $MSE = 0.805$, $p = 0.267$, $\eta_p^2 = 0.010$. However, there was a significant interaction between character type and story version, $F(4, 274) = 13.408$, $MSE = 0.805$, $p < 0.001$, $\eta_p^2 = 0.164$; post hoc comparisons using the Bonferroni correction indicated that for complete characters, version A ($M = 2.702$, $SE = 0.152$) significantly differed from version C ($M = 3.662$, $SE = 0.254$), $t(94) = 3.207$, $p = 0.002$. For partial characters, version B ($M = 1.801$, $SE = 0.147$) significantly differed from version C ($M = 1.184$, $SE = 0.114$), $t(94) = 3.327$, $p = 0.001$. Lastly, for none characters, version A ($M = 0.606$, $SE = 0.092$) significantly differed from both version B ($M = 0.007$, $SE = 0.007$), $t(92) = 6.490$, $p < 0.001$, and version C ($M = 0.000$, $SE = 0.000$), $t(94) = 6.726$, $p < 0.001$.

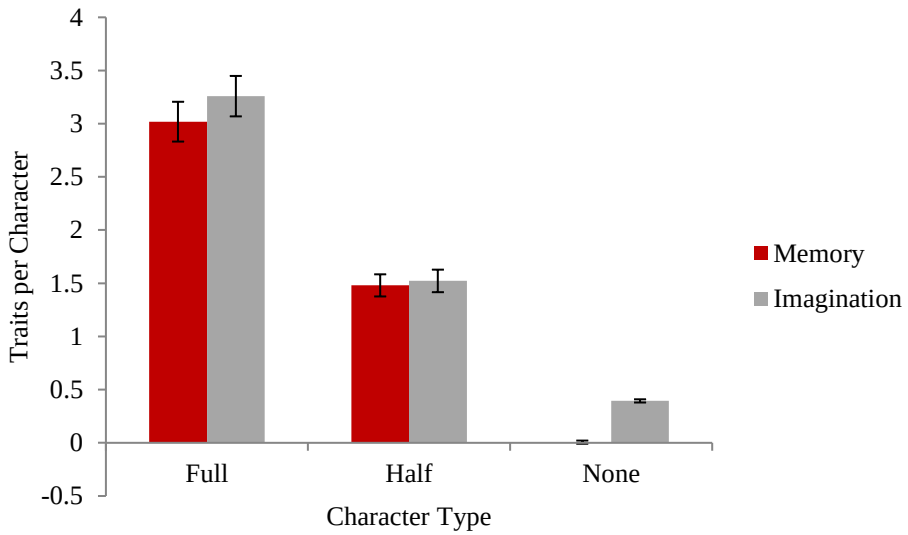

Figure 14. Contradicted traits per character by character type and instruction (Experiment 2 Cued Recall).

Elaborations. For elaborations (see Figure 15), there was a significant main effect of instruction, $F(1, 137) = 116.782$, $MSE = 3.331$, $p < 0.001$, $\eta_p^2 = 0.460$; the imagination group ($M = 3.704$, $SE = 0.126$) made significantly more elaborations than the memory group ($M = 1.798$, $SE = 0.123$). There was no significant main effect of story version, $F(2, 137) = 0.125$, $MSE = 3.331$, $p = 0.883$, $\eta_p^2 = 0.002$; story version A ($M = 2.726$, $SE = 0.154$), version B ($M = 2.813$, $SE = 0.154$), and version C ($M = 2.715$, $SE = 0.151$) all produced similar numbers of elaborations. There was also a significant interaction between instruction and story version, $F(2, 137) = 4.171$, $MSE = 3.331$, $p = 0.017$, $\eta_p^2 = 0.057$; post-hoc tests using independent samples revealed that although the difference between the groups was significant for all three versions – with the imagination group making greater elaborations in all three cases – the differences in versions B, $t(45) = 7.647$, $p < 0.001$, and C, $t(47) = 7.239$, $p < 0.001$, were greater than the difference in version A, $t(45) = 3.882$, $p < 0.001$. This makes sense because the main characters were either

partially described or undescribed in versions B and C, leaving more opportunity for elaborations than in version A, where the partial and undescribed characters were minor characters. There was a significant main effect of character type, $F(2, 274) = 652.554$, $MSE = 1.288$, $p < 0.001$, $\eta_p^2 = 0.826$; complete characters ($M = 0.242$, $SE = 0.018$) significantly differed from partial characters ($M = 2.924$, $SE = 0.089$), $t(142) = 22.577$, $p < 0.001$, and partial characters significantly differed from none characters ($M = 5.087$, $SE = 0.182$), $t(142) = 19.867$, $p < 0.001$.

There was a significant interaction between character type and instruction, $F(2, 274) = 92.971$, $MSE = 1.288$, $p < 0.001$, $\eta_p^2 = 0.404$. For partial characters, the imagination group ($M = 3.876$, $SE = 0.100$) made more elaborations than the memory group ($M = 1.965$, $SE = 0.150$), $t(141) = 10.486$, $p < 0.001$; additionally, for none characters, the imagination group ($M = 6.940$, $SE = 0.221$) made more elaborations than the memory group ($M = 3.196$, $SE = 0.300$), $t(141) = 9.990$, $p < 0.001$. There was also a significant interaction between character type and story version, $F(4, 274) = 4.048$, $MSE = 1.288$, $p = 0.003$, $\eta_p^2 = 0.056$; post hoc comparisons using the Bonferroni correction indicated that for complete characters, version C ($M = 0.154$, $SE = 0.021$) significantly differed from version A ($M = 0.338$, $SE = 0.039$), $t(94) = 4.203$, $p < 0.001$, though it did not differ from version B ($M = 0.232$, $SE = 0.035$), $t(94) = 1.914$, $p = 0.059$, nor did A and B significantly differ.

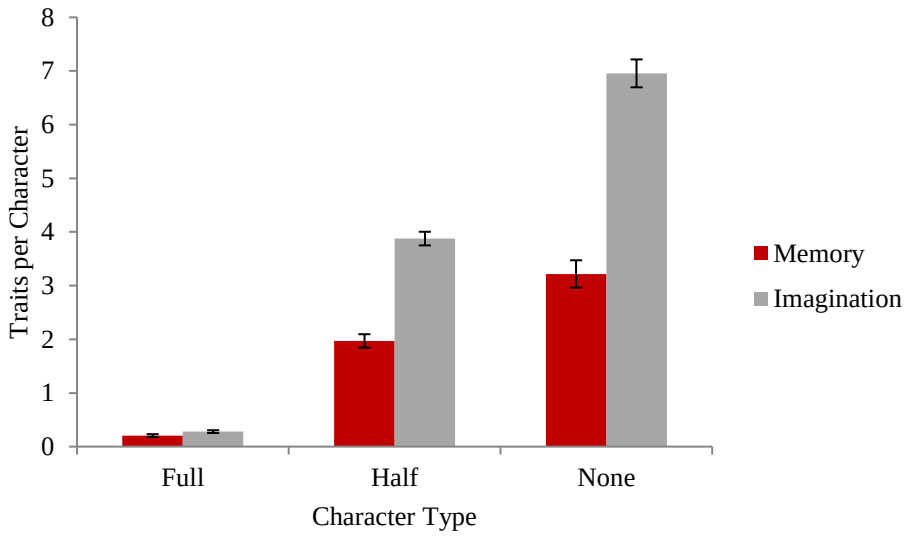

Figure 15. Elaborated traits per character by character type and instruction (Experiment 2 Cued Recall).

Multiple-Choice

The same scoring and analysis procedure as the cued recall condition was employed in the multiple-choice answers. Again, the predictions did not change from those stated in the free recall condition, and the same raters scored these responses. The Cronbach's alphas were 0.996 for correct recalls, 0.952 for contradictions, and 0.962 for elaborations.

Correct Recalls. For correct recalls (see Figure 16), there was no significant main effect of instruction, $F(1, 162) = 0.007$, $MSE = 3.719$, $p = 0.933$, $\eta_p^2 = 0.000$; the memory ($M = 2.850$, $SE = 0.121$) and imagination groups ($M = 2.865$, $SE = 0.121$) did not significantly differ in the amount of correctly recalled information. There was also no significant main effect of story version, $F(2, 162) = 1.223$, $MSE = 3.719$, $p = 0.297$, $\eta_p^2 = 0.015$; story version A ($M = 3.029$, $SE = 0.149$), version B ($M = 2.701$, $SE = 0.149$), and version C ($M = 2.842$, $SE = 0.149$) all produced similar rates of correct responses. There was no significant interaction between

instruction and story version, $F(2, 162) = 0.719$, $MSE = 3.719$, $p = 0.489$, $\eta_p^2 = 0.009$. However, there was a significant main effect of character type, $F(2, 324) = 102.001$, $MSE = 1.608$, $p < 0.001$, $\eta_p^2 = 0.386$; post hoc comparisons using the Bonferroni correction indicated that complete ($M = 3.866$, $SE = 0.126$), partial ($M = 2.815$, $SE = 0.089$), and none characters ($M = 1.891$, $SE = 0.132$) all significantly differed from one another, all t's > 6.000, $p < 0.001$. As before, this served as a successful manipulation check, showing that characters with more given traits possess a greater potential for correct recalls.

There was a significant interaction between character type and instruction, $F(2, 324) = 3.831$, $MSE = 1.608$, $p = 0.023$, $\eta_p^2 = 0.023$; although the global test for the interaction was significant, none of the resulting t-tests reached the level of significance. There was also a significant interaction between character type and story version, $F(4, 324) = 15.258$, $MSE = 1.608$, $p < 0.001$, $\eta_p^2 = 0.159$; post hoc comparisons using the Bonferroni correction indicated that for story version A, partial characters ($M = 2.234$, $SE = 0.159$) significantly differed from version B ($M = 2.909$, $SE = 0.161$) and version C ($M = 3.304$, $SE = 0.145$), though B and C did not significantly differ. Additionally, the none characters in version A ($M = 2.714$, $SE = 0.292$) significantly differed from version B ($M = 1.696$, $SE = 0.171$) and version C ($M = 1.262$, $SE = 0.216$).

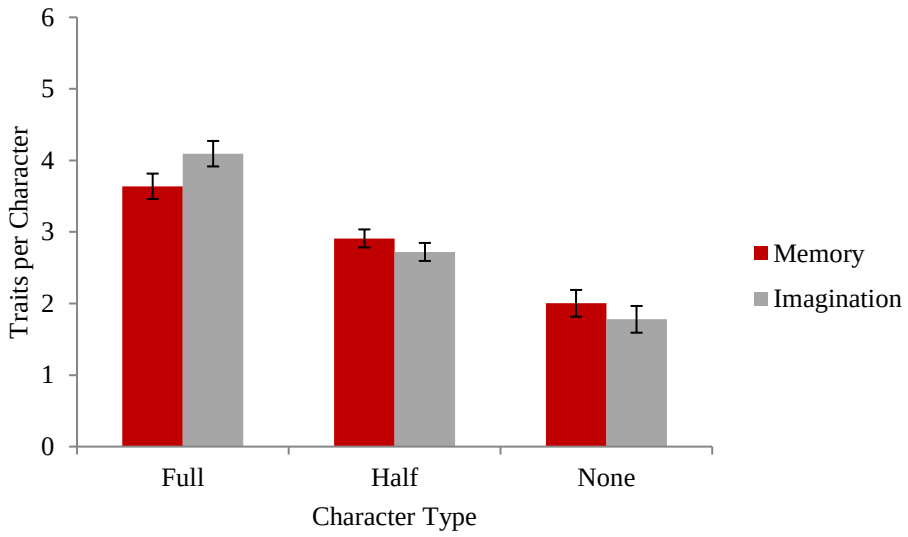

Figure 16. Corrected recalled traits per character by character type and instruction (Experiment 2 Multiple-Choice).

Contradictions. For contradictions (see Figure 17), there was no significant main effect of instruction, $F(1, 162) = 1.650$, $MSE = 0.921$, $p = 0.201$, $\eta_p^2 = 0.010$; the memory ($M = 1.818$, $SE = 0.060$) and imagination groups ($M = 1.709$, $SE = 0.060$) did not differ in the number of contradictions made. There was a significant main effect of story version, $F(2, 162) = 5.290$, $MSE = 0.921$, $p = 0.006$, $\eta_p^2 = 0.061$; post hoc comparisons using the Bonferroni correction indicated that story version C ($M = 1.567$, $SE = 0.074$) significantly differed from both version A ($M = 1.848$, $SE = 0.074$) and version B ($M = 1.875$, $SE = 0.074$), while versions A and B did not differ from one another. There was no interaction between instruction and story version, $F(2, 162) = 0.122$, $MSE = 0.921$, $p = 0.885$, $\eta_p^2 = 0.002$. There was a significant main effect of character type, $F(2, 324) = 1044.342$, $MSE = 0.516$, $p < 0.001$, $\eta_p^2 = 0.866$; post hoc comparisons using the Bonferroni correction indicated that complete ($M = 3.588$, $SE = 0.095$), partial ($M = 1.695$, $SE = 0.052$), and none characters ($M = 0.007$, $SE = 0.003$) all significantly differed from

one another, all *t*'s > 22.000, $p < 0.001$. Again, this pattern was expected, given that contradictions can only be given when traits are present; thus, the number of contradictions is dependent on the number of traits.

There was a marginally significant interaction between character type and instruction, $F(2, 324) = 2.672$, $MSE = 0.516$, $p = 0.071$, $\eta_p^2 = 0.016$; for none characters, the memory group ($M = 0.015$, $SE = 0.006$) and imagination group ($M = 0.000$, $SE = 0.000$) significantly differed, $t(166) = 2.472$, $p = 0.014$. These numbers were likely too low for the interaction to reach significance. There was also a significant interaction between character type and story version, $F(4, 324) = 5.177$, $MSE = 0.516$, $p < 0.001$, $\eta_p^2 = 0.060$; post hoc comparisons using the Bonferroni correction indicated that partial characters in version A ($M = 1.994$, $SE = .100$) and version B ($M = 1.732$, $SE = 0.073$) both significantly differed from version C ($M = 1.359$, $SE = 0.093$). Additionally, the complete characters in version B ($M = 3.829$, $SE = 0.154$) significantly differed from version C ($M = 3.331$, $SE = 0.158$).

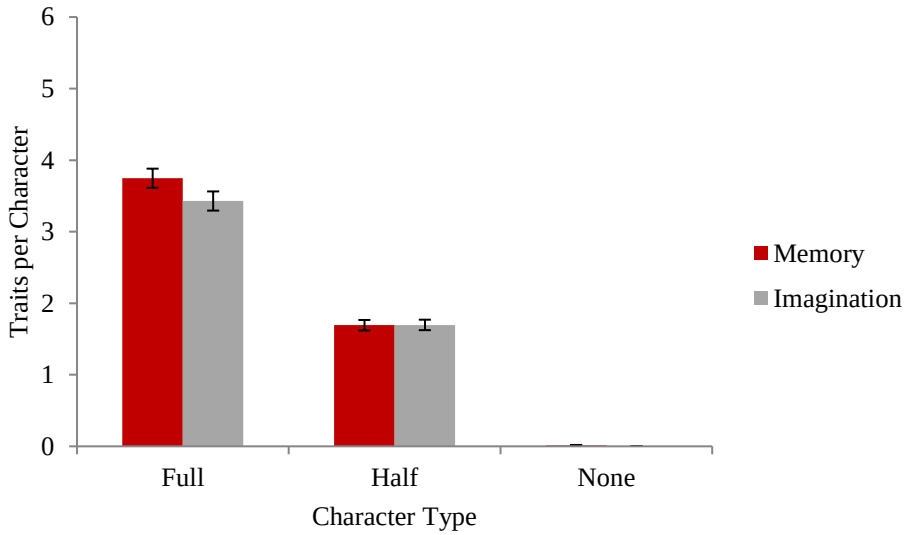

Figure 17. Contradicted traits per character by character type and instruction (Experiment 2 Multiple-Choice).

Elaborations. For elaborations (see Figure 18), there was a significant main effect of instruction, $F(1, 162) = 10.254$, $MSE = 1.439$, $p = 0.002$, $\eta_p^2 = 0.060$; the imagination group ($M = 3.042$, $SE = 0.076$) made more elaborations than the memory group ($M = 2.700$, $SE = 0.076$). This supported the original hypothesis that the imagination group would fill out their character representations with additional detail beyond that which was presented in the text. There was also a significant main effect of story version, $F(2, 162) = 14.478$, $MSE = 1.439$, $p < 0.001$, $\eta_p^2 = 0.152$; post hoc comparisons using the Bonferroni correction indicated that story version A ($M = 2.467$, $SE = 0.093$) significantly differed from both version B ($M = 3.036$, $SE = 0.093$) and version C ($M = 3.110$, $SE = 0.093$), while version B and C did not differ from one another. This pattern is important because version A is the only version where the main characters are fully described; thus, it seems that the higher rate of elaborations in versions B and C reflects a desire to form more complete representations of the central characters in the plot. There was a significant interaction between instruction and story version, $F(2, 162) = 6.905$, $MSE = 1.439$, $p = 0.001$, $\eta_p^2 = 0.079$; post-hoc tests using independent samples showed that for version A, the difference between memory and imagination groups was not significant, $t(54) = 1.190$, $p = 0.239$. However, the difference between those groups was significant in both version B, $t(54) = 2.944$, $p = 0.005$, and version C, $t(54) = 3.606$, $p = 0.001$, with the imagination group making more elaborations in both cases. This repeated the pattern of interaction from the cued recall condition; the main characters were at most partially described in versions B and C, leaving greater opportunities for elaboration in those stories as compared to version A, where the partial and none characters were only minor characters. There was a significant main effect of character type, $F(2, 324) = 1467.571$, $MSE = 0.757$, $p < 0.001$, $\eta_p^2 = 0.901$; post hoc comparisons using the

Bonferroni correction indicated that the complete (M = 0.211, SE = 0.015), partial (M = 3.058, SE = 0.059), and none characters (M = 5.345, SE = 0.118) all significantly differed from one another, all t's > 19.000, $p < 0.001$. This is to be expected, given that elaborations can only occur in the absence of given traits. Thus, much like contradictions, the rate of elaborations is dependent on the amount of detail in the text.

There was a marginally significant interaction between character type and instruction, $F(2, 324) = 2.732$, $MSE = 0.757$, $p = 0.067$, $\eta_p^2 = 0.017$. For complete characters, the imagination group (M = 0.261, SE = 0.027) made significantly more elaborations than the memory group (M = 0.161, SE = 0.020), $t(166) = 2.961$, $p = 0.004$. For partial characters, the imagination group (M = 3.254, SE = 0.098) made more elaborations than the memory group (M = 2.861, SE = 0.073), $t(166) = 3.214$, $p = 0.002$. Lastly, for none characters, the imagination group (M = 5.612, SE = 0.215) made more elaborations than the memory group (M = 5.078, SE = 0.161), $t(166) = 1.985$, $p = 0.049$. Though the individual tests all reached significance, the differences were likely too slight to allow the interaction to reach full significance. There was also a significant interaction between character type and story version, $F(4, 324) = 20.245$, $MSE = 0.757$, $p < 0.001$, $\eta_p^2 = 0.200$; post hoc comparisons using the Bonferroni correction indicated that complete characters in version C (M = 0.333, SE = 0.034) significantly differed from version A (M = 0.151, SE = 0.021) and version B (M = 0.149, SE = 0.026), though A and B did not significantly differ.

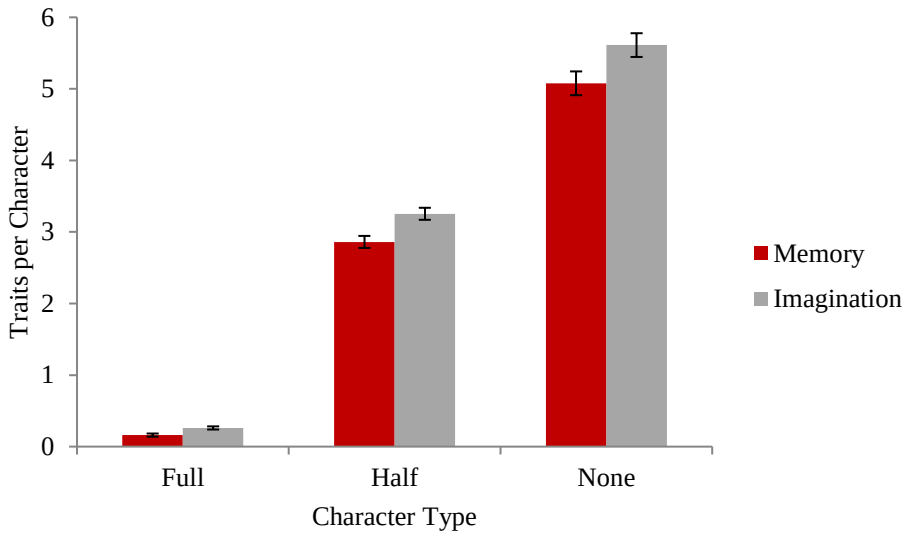

Figure 18. Elaborated traits per character by character type and instruction (Experiment 2 Multiple-Choice).

Discussion

In summary, Experiment 2 led to additional insights that were made possible by stricter experimental control over character descriptions. With regards to the instruction manipulation, the pattern of results in Experiment 2 closely mirrored that of Experiment 1; the imagination group continued to make more contradictions and elaborations than those who had been instructed to report only traits they explicitly remembered from the story. When characters were only partially described or completely undescribed, the difference between the groups was even larger. Due to the controlled distribution of traits in this experiment, comparisons between characters within a single story were moot; however, interactions between character type and story version can illuminate how readers prioritize representations of character. In the cued recall condition, for instance, participants were most accurate for complete and partial characters in the versions where those categories corresponded with the principal characters. If one of the minor

characters was fully or partially described instead, it did not lead to the same level of recall. Moreover, participants in the imagination group tended to make more elaborations for stories B and C, the two versions where the principal characters were not fully described. Thus, there seems to be some support for the original hypothesis that the main protagonists in a story will receive a disproportionate amount of attention. Readers seem to be particularly sensitive to descriptions of these characters, and they readily form elaborations about them when there is an opportunity to do so.

CHAPTER 5

GENERAL DISCUSSION

Two experiments were conducted to investigate whether readers form mental representations of characters' physical appearance and, if so, how much information they draw from the story versus how much information they self-generate. Past explorations of character traits in narrative were concerned primarily with internal traits (Albrecht & O'Brien, 1993; Peracchi & O'Brien, 2004), however, Morra and Guðbjörnsdóttir (2009) found that after reading an Icelandic folk tale, readers generated character descriptions with high vividness of imagery ratings. Similarly, Cothern, Konopak, and Willis (1990) received highly varied descriptions of characters when probing two young readers following a short story. Taken together, these findings suggested that physical attributes do constitute some part of a reader's representation for character; however, a greater level of experimental control was needed to determine the extent to which readers can remember and report physical attributes.

In Experiment 1, a novel short story was written exclusively for use in this study to prevent the possibility of any participant familiarity with the text or characters. Also, this allowed for a slightly more ecologically valid stimulus than those employed in many reading comprehension studies. After reading the story, participants were asked to either report traits that they explicitly remembered from the story or to report any traits that came to mind when they thought of the character. In this way, participants' memory for the surface form was contrasted with their situation model (van Dijk & Kintsch, 1983); the latter should be more susceptible to inference generation (Zwaan & Radvansky, 1998) and therefore less accurate. Indeed, I found that participants were generally good at differentiating between the two memory sources. Those in the memory only group generated fewer contradictions and elaborations upon recall than those

who were encouraged to use their imagination. Whether this reflects the existence of two independent memory representations – one restricted to textual information and one containing inferences and elaborations – or whether it reflects a stricter recall criteria on the part of the memory group is unclear; regardless, it suggests that readers have at least some level of awareness of where their imagined representations deviate from the text.

Another crucial element in Experiment 1 was the division between major and minor characters. Research has shown that the principal characters in a story command more attention and stronger encoding from readers, whether it is simply because of repeated exposure (Gernsbacher et al., 2004) or the perceived centrality of those characters to the plot (Gerrig et al., 2009). To that end, participants' responses were examined separately for the major characters, who were given more description overall, and minor characters, for whom the level of description ranged from a few physical traits to none. Previous work had shown that readers tend to integrate information around characters (Radvansky & Zacks, 1991) and that it is easier to remember persons when one can form this kind of integrated situation model (Kole & Healy, 2007). Consistent with these ideas, I predicted that readers would readily generate elaborations for the minor characters in order to fill the gaps left by the text. Indeed, in Experiment 1, participants in the imagination group reported more contradictions and elaborations for minor characters. When the level of detail in the text was low, participants generated their own information to make up the difference.

Experiment 2 was conducted to increase the level of experimental control over the presentation of characters' physical traits. Distinctions between major and minor characters in Experiment 1 were somewhat arbitrary and, not surprisingly, there were more traits described for the major characters. In Experiment 2, the story was modified such that the amount of

description across characters had a clear structure; this allowed for a more in-depth analysis of patterns of correct recalls and elaborations as the number of given traits per character were zero, four, or eight. Similar to Experiment 1, the instruction manipulation led to differences; in all three response conditions, the imagination group made more elaborations overall when compared to the memory group. The absence of an accuracy boost for the memory group suggests that perhaps the difference between the groups is a matter of differing response criteria, rather than qualitative differences between the remembered and imagined representations. In fact, this idea is further supported by the fact that in the cued recall condition, the imagination group was more accurate for the complete characters; by feeling less restricted in what they can report, participants in that group conveyed a greater level of detail and thus more correct recalls.

The redistribution of traits in Experiment 2 introduced the possibility of comparing memory for traits of a particular character across stories. Indeed, some interesting observations emerged from the data concerning interactions with the stories. For instance, story version A – in which the major characters were fully described – produced fewer elaborations overall compared to the other two versions. This supports the idea that major characters command a disproportionate amount of the readers' attention (Gerrig et al., 2009), so that they are less likely to elaborate on undescribed characters when those characters are not central to the story. Moreover, participants' accuracy for complete and partial characters was highest in the versions where those categories corresponded with the major characters. If a lesser character was fully or partially described, it did not create as strong a representation in memory, perhaps due to the lack of repetition inherent in major characters (Gernsbacher et al., 2004).

One finding that was not predicted at the outset was that participants' overall rate of responding would be relatively low, particularly in the free recall condition. Based on the

findings in Morra and Guðbjörnsdóttir (2009)'s interview paradigm, I believed that participants' recall of characters would be more detailed than what was observed here in Experiments 1 and 2. While previous studies have shown idea units about characters' personality traits and story contribution to be fairly common (Albrecht & O'Brien, 1993), in this thesis the observed number of physical attribute responses was quite low – even in Experiment 2, which sought to raise the level of responding by introducing a larger number of given traits. It seems that participants needed the recognition probes available in cued recall and multiple-choice to maximize their success in recalling characters' physical appearance. It is possible that physical representations of character are similar in some respects to another dimension of the event-indexing model: space (Radvansky & Copeland, 2010). From the results of this study, physical appearance does not appear to be something that readers are necessarily tracking in real-time, but rather something that they reconstruct at the moment of recall.

Limitations and Future Directions

One of the limitations of this study was that it utilized an immediate recall paradigm. Past research into levels of representation has shown that while the surface form and textbase tend to be available for immediate memory tests, they decay rapidly; in contrast, the situation model is relatively stable over time (van Dijk & Kintsch, 1983). Thus, as more time passes, people tend to rely on their situation models in memory, which are susceptible to errors and inferences (Zwaan & Radvansky, 1998). It is conceivable, then, that readers' impressions of character are so highly subjective because they are basing their confidence on a situation model that is no longer accurate. Given a longer period between reading the story and recalling the characters, it is possible that the difference between the memory and imagination groups would fade away; even if the memory group is attempting to hold itself to a stricter response criteria, they may still

report contradictions and elaborations because the source tag in memory has been lost over time. I am currently conducting experiments to examine memory for characters' physical traits after a delay.

Another potential limitation concerns the low response rate in the free recall conditions. Compared to Morra and Guðbjörnsdóttir (2009), the materials in this study were relatively mundane. This was a deliberate choice made during the construction of the story; it was believed that participants would easily be able to form representations of characters similar to themselves (i.e., college students). However, it is possible that the ordinariness of these characters failed to stimulate the imagination of these participants in the same way that supernatural elements in the Icelandic folk tales did. The vividness of imagery in this thesis may have suffered then, as reflected by the unexpectedly low response rate. A future examination could construct a new story or use existing literature with a more fantastical setting and see if the number of free recalls increases.

Similarly, this thesis diverged from past narrative comprehension experiments in that the target information was largely irrelevant to the plot. In studies such as Albrecht and O'Brien (1993), the to-be-remembered internal traits played a role in the context of the story. Thus, they were important to remember not just because they helped form an impression of the character but also because they were necessary for plot comprehension. In addition, studies exploring other aspects of situation models (e.g., memory for spatial relations) have shown that functional information (i.e., playing a role in achieving a character's goal) tends to be better remembered than non-functional information (Radvansky & Copeland, 2000; Radvansky, Copeland, & Zwaan, 2003). Future studies may wish to test whether integration of physical details into the plot leads to any changes in memory for them.

Lastly, as a potential future direction for this research, the integration of a reading time measure like those used by Zwaan, Magliano, and Graesser (1995) or Albrecht and O'Brien (1993) might shed some light on whether representation of characters' physical appearance is an on-line process or simply a reconstruction at the moment of recall. First, one could see whether reading times slow as readers are given character descriptions; for example, comparisons could be made for physical traits of major or minor characters. Second, one could manipulate whether later descriptions of physical traits maintain global coherence or not; if readers slow down at moments of inconsistency, it would suggest that they are actively maintaining physical representations while they read.

CHAPTER 6

CONCLUSION

In summary, this thesis demonstrated that readers possess at least some level of source memory for their representations of characters' physical appearance. When probed immediately after reading a story, participants were successful in limiting their responding only to textual information if instructed to do so; by contrast, when participants were given free rein to report whatever traits they imagined – regardless of accuracy – they freely generated information that elaborated upon and sometimes even contradicted the descriptions given by the text. This natural process of elaboration occurs whenever the amount of detail in the text is insufficient to form a complete representation of the character. In an even more revealing finding, this tendency to elaborate seems to be weighted towards the main protagonists in a story; if those major characters are sufficiently described, then the overall level of elaborating is significantly lower than if those characters were neglected. In all, these findings suggest that readers seem to readily generate representations of characters' appearance using a combination of textual information and their own imagination.

APPENDIX A

Version A (complete)

Wednesday morning, middle of the week, and the university campus was bustling with students running last minute errands or grabbing a cup of coffee to get them through the day. With the beginning of class approaching, students piled into the room and took their seats. Nevin sat in one of those seats, watching the other students while he let his mind wander to the sounds of Pink Floyd coming through the ear buds of his iPod. Through the window, you could see that the sun was shining in this rural, inland California town that included a mixture of locals, relocated Midwesterners, and trust-fund students who did not cheat well enough in high school to get into their preferred schools on the coast. To the locals, even though the university was the lifeblood of the town, many resented it because of the out of touch, know-it-all professors; everyone knew they were lazy snobs supported by the state government. The locals also resented those spoiled kids. Today, they grew up in a generation where they were no longer taught proper values – these youngsters didn't respect their elders, at least not like they did back in the day. To the Midwesterners, the university was another part of the disappointment that came with the cross-country move after the recent economic recession. Nobody thought of the traffic, political turmoil, and high cost of living before relocating here. The dreams that brought them to this town only focused on warm weather and jobs aplenty. Everyone forgets to realize that the grass is always greener on the other side, but, alas, it is also just as hard to mow.

Professor Gilmore entered the classroom hurriedly, a couple minutes late, apologizing profusely while wiping the sweat from his brow. "Sorry for the delay folks, traffic was terrible today…but let's get started." He wore his usual black rimmed glasses, which drew attention to his light blue eyes. Thus far, his fifties had been kind to him, allowing him to retain his full head of hair while giving him that distinguished touch of gray among the rest of his short brown hair. In order to appear even more youthful, Professor Gilmore usually kept his white skin fairly tan. Aside from being dazed from morning rush hour, his tall, thin stature remained relaxed as it moved around the podium. He continued, "Today is the day I am assigning your group projects!" He could already hear the sighs and see some students rolling their eyes. "I know, I know, but this is the biggest assignment of the semester and no one can do this assignment alone." He continued, "To be fair to everyone, I randomly assigned each of you to a group with four of your fellow students." With that announcement, he passed around papers that had all of the students listed with their respective group number on the page.

After the list was passed out to all of the students in the room, Professor Gilmore checked, "Okay, does everyone know their assigned group?" Besides the faint clicking of cell phone buttons as someone was penning an all-important text message, silence permeated the room. Shoving his glasses back towards his face, Professor Gilmore responded to the lack of enthusiasm with some fabricated enthusiasm of his own. "I am going to take the lack of objections as a yes!" He continued, "Now, here are the guidelines for the assignment," as he waved a stack of stapled papers in his hand. "It will include a written paper and a presentation section..."

Nevin tuned out the professor's instructions – it never really mattered because everything was always spelled out in the handouts. Nevin sat on the very end of one of the middle rows and, as a sophomore biology major, he really wasn't interested in this required English course. He leaned back on his chair as the minutes slowly ticked by, wearing a green T-shirt and torn up jeans, tapping his black Converse tennis shoes on the floor. He didn't stand out from the crowd

by the looks of him. His average height and build helped him blend in with the crowd. Top that off with his sandy brown hair and green eyes, and he looked like a typical boy from the suburbs. In fact, the most unique thing about Nevin was his slightly bronzed skin, a trait he owed to his Native American heritage. While he didn't necessarily stand out amongst other students his age, some locals have said that their first impression of him had "slacker" written all over it. Consistent with that label, Nevin wasn't the kind of perfectionist student to linger on an out of place sentence in his papers, or to reread assignments before class to refresh his memory. He stood by his tried and true methods of writing only one draft of papers and limiting himself to only skimming the pages of assigned readings. He was prepared to get a B as long as he did not have to break a sweat. So far, these qualities allowed him to get by in his classes, but he knew that group members rarely tolerated his learning style. Nevin smugly thought that it wasn't his fault that he learned difficult material so quickly.

Professor Gilmore was still rambling on about page counts and deadlines, so Nevin sat back and casually looked around, trying to guess which people he would be forced to work with. Nevin didn't really know anyone else in this class, nor did he really care to know them. He was hoping that he didn't end up having to work with anyone who was too lame. Professor Gilmore was finally wrapping up. "All right, everyone, please get into your groups. I would suggest exchanging emails or phone numbers." He sternly looked at all of the students through his glasses as they got up and moved around the room.

Nevin, without moving the rest of his body, called out his group number and raised his hand into the air in the sign of a peace sign to signify the number two; an act that insisted that the other members of his group meet him where he already was.

As Nevin went to stash his ear buds, he was interrupted by a voice, "Did you read this story?" As he looked to find the source of this annoyingly enthusiastic voice, she continued, "It's staggering and definitely worth the read!" The words came from a thin (some might say scrawny) student who was pointing to the short story that would become the basis of their project. She looked to be about Nevin's age, a sophomore like him. Sitting down next to Nevin, they immediately caught each other's eyes and sized each other up. Andrea, in contrast to Nevin, enjoyed not only opening up books, but also reading every word on every page. She waved to Nevin while introducing herself and asking, "*Please* tell me you read the story?" The square Ray Ban sunglasses sitting atop her head helped push the overwhelming volume of her long, red hair away from her face. Andrea wore a worn, brown leather jacket, which looked like she stole it from her mother's closet. In her mind, it was just old enough to be called vintage. Nevin thought it made her look silly, but at least she wasn't wearing a North Face jacket and Ugg boots like every other white girl at this school. Andrea was majoring in English and was a frequent visitor to the study area on the third floor of the library.

Nevin's attention quickly shifted again when he saw another student make eye contact with him. This student was a petite, young blonde girl with very pale skin who was approaching him from the side. She looked to be a little younger than the other two, perhaps a freshman. She wore a loose, black hooded jacket, with an Indie rock band T-shirt underneath paired with tight fitting blue jeans and some worn boots. Nevin guessed that she had never been to a concert, but only wore that T-shirt to look cool. Her neck was laced with several different necklaces, which she played with during class, weaving them in and out of her fingers. She convinced herself that it made the time go by faster. She shook Nevin's hand with a very loose grip and introduced herself as Dawn as she quickly sat in the chair on the other side of him. Nevin's first impression

was that she was a pushover and assumed that she would be very easy to boss around. “No confrontation issues here,” he thought.

As Nevin was assessing Dawn, Michelle finally made her way over and was carrying a handful of textbooks while leaning to the side, to steady her heavy backpack on her shoulder. Michelle, or Shell, as her friends called her, typically sat in the front row, so that she could pay attention to everything that the professor said. She was a mature twenty-year-old junior and had several semesters under her belt to know that listening in class was important to her academic success. To Shell, top scores were easy to attain as long as you paid attention and took detailed notes. Of course, this was made much easier by sitting in the front of the room and maintaining proper posture. Shell was regularly mistaken for being older than she really was, and it was probably because she was very tall for a woman, standing just over six feet. Shell’s height was almost always the first thing people noticed about her, besides the dark brown tone of her skin. She always preferred to keep her hair quite long. However, her long hair meant that she would regularly have to brush a stray piece of hair back from her eyes. Despite her discipline to her own study habits, she was very warm and welcoming to others. Shell knew how to handle difficult situations and move through them quickly, which she believed was a great characteristic for group work.

Michelle greeted all of them, “Hello - just to let everyone know, my friend Naomi is also in our group, but she just couldn’t make it to class today.” Without pausing to let the others speak, Shell continued, “Now, I think the first order of business is to get everyone’s phone number.” Shell didn’t mess around when it came to school work and wanted to dive right into the assignment. Unfortunately, not everyone else felt the same way. In particular, Nevin was a bit resistant and felt the need to jump in, “Wait a minute, who elected you team leader?” Despite Nevin’s appearance, he did know how to take the lead on projects - as he puts it, he just goes about it in an alternative way.

Shell paused for a second and then dropped her books on the table before taking a seat in the row in front of everyone. She unknowingly pushed her hair behind her ear, out of habit, and then nodded her head, silently deferring to Nevin. To Shell, her people skills told her that it would be better to let him take over, so she put her academic ego aside to get some work done.

“Well, first off,” the voice that spoke next was the girl that everyone had assumed would be soft-spoken. Dawn continued, “The project is about peeling the layers of the story back and applying it to our lives and creating examples. So I think it’s important that everyone thoroughly understands the reading.” Everyone bobbed their head in agreement. Maybe Nevin was wrong about her - Dawn might be quiet but she knew when to speak up to make herself heard. In this case it was to silence all of these egos and get the ball rolling. “I think Andrea is the right person to tell us what the story is about since she seems to be the expert.” Dawn stopped and looked at Andrea, signaling her to start.

Andrea wasn’t sure where to start, but her analytical side took over and she explained, “Well...first off, this writer wasn’t the first to write using this style....” As she carried on with her intellectual babble, Nevin laid his head in his hands, slowly running his fingers through his short hair and digging his nails into his scalp. He only listened to a fraction of what this girl was saying because it was easy for Nevin to come up with a clear and predictable take on this story, and he just wanted to get on with the rest of class. When Nevin saw Andrea reach for another book out of her backpack to prove another one of her points, he quickly tried to grab control of the situation again.

"Okay, okay. It's Andrea, right? Enough of that for now, class is almost over." As he said that, he whispered words of gratefulness to his favorite deity underneath his breath. He suggested to the group, "Let's all trade numbers and meet up somewhere at noon on Friday." As everyone reached for their phones, Andrea motioned, signaling that she was ready to speak again. Nevin thought, "Oh no, what does this 1980s leather jacket-wearing nerd want now? Please, god, don't let her go off on another tangent again." Thankfully for Nevin, it was much easier to handle as Andrea proposed, "I'll offer up my place for Friday - it's quiet and I'll have all the extra materials right there for us to use." No one offered up any objections, so Friday at noon it was. Before everyone left the table Shell needed to make one thing clear, "I want to write the essay part of the project." No one reacted, so she continued, "I'm an excellent writer and thought it would be best if I had one of the bigger jobs to do." Nevin rolled his eyes and thought to himself, "This girl doesn't know when to just let up and trust that things will get done." Shell continued, "Okay, since there are no objections, I'll see everyone on Friday!" She walked away from the brief meeting satisfied that at least one part of this whole project would get done correctly!

On Friday, Andrea woke up in the late morning to the sounds of her neighbors, coming from the other side of her bedroom wall. As she slipped on the glasses she sometimes wore to avoid the hassle of contacts, she could hear that the neighbors were having an affectionate mid-morning encounter, and apparently the woman didn't want her boyfriend to stop any time soon. To drown out the sound, Andrea donned a pair of noise-cancelling headphones and plugged in her electric Les Paul guitar. She recently found an interest in music and settled on learning how to play the guitar. It was the only thing that kept her away from her typical library routine. She was in the middle of learning a new cord when she heard a knock at her bedroom door. She quickly jumped off of her bed, shoved her guitar in the closet, and made sure that all of the sheets of music were hidden. She was proud that she was teaching herself how to play, but she was also embarrassed for anyone else to hear her because she didn't think she was any good.

There was another knock, this time more like a pounding. That pounding was joined by her little brother's whiney squeal, "Andrea, come get the door - I'm too busy to be your butler!" Andrea opened the door and saw her brother, Joshua. She could see that he was in the middle of building another one of his "science" projects. Distracted by all the commotion in the living room, she stood in amazement as she watched her brother's quirky attributes surface. As she stood there, she noticed that Joshua had a friend over. Zoran, who was around the same age as her brother, looked over and said to her, "I'm sorry, ma'am, for the mess - it was Josh's idea!" And then, without waiting for a response, he ran off to join his friend again.

Snapping out of her trance, she realized someone was pounding on the front door. Advancing towards the door, Andrea continued to spy on Joshua and Zoran running back and forth between the garage and the living room – the two of them were creating a pile of junk on the carpet. Joshua was extremely energetic and his parents thought it was just his age, but Andrea wondered about it. How could she be so vastly different than her brother? Andrea was calm and focused - she could sit still for hours. There was no way that they came from the same parents – at one point Andrea was convinced that a FedEx driver had dropped baby Joshua off at the front door. She smiled to herself as she thought about that while finally opening the front door.

Standing right outside was Michelle, who Andrea remembered because of her height. Next to her was another, much shorter, Asian girl – not that Andrea had a ton of room to talk, being fairly short herself. Andrea didn't recognize the new girl. Shell must have noticed the puzzled glare, because she began silently cursing herself for forgetting her manners and not properly introducing her friend. "This is my friend Naomi - she wasn't in class the other day, but

I told you about her." Naomi gave a shy smile and said, "You can call me Nae, that's what everyone calls me." Andrea gave a welcoming smile in Nae's direction, noting Nae's athletic frame and subtle good looks that included some faint purple streaks to her black hair. According to Shell, Nae was an accounting major and was new to the campus. So far, she had only made a few friends through her classes, with Shell being one of them. Nae stood quietly while Shell continued on, as if she couldn't have properly introduced herself. Just then, out of the blue, Nevin burst through the front door with no knock, looking just as sloppy as ever. Michelle stepped aside so he could get in and commented on his roll-out-of-bed style. Nevin sneered for a second before sarcastically saying, "It's a relaxed look." He considered making a comment about Andrea's glasses, which she hadn't been wearing in class, but ultimately decided against it. As he moved, the rest of them saw that Dawn had quietly entered behind Nevin, and was standing behind the group.

Andrea motioned for everyone to come in as she closed the front door. She suggested that they go upstairs since Joshua had monopolized the downstairs area. She apologized to them, "Sorry everyone, my brother is a little eccentric with his science projects," making air quotes as she said "science". "I've got all the books I was talking about here," she pointed to a large stack she had made in the corner of the room.

Right away, Shell piped up and suggested that they strategize how they were going to divide up the work. She laid out her idea, "I was thinking that some of us could go around town and get some pictures for the presentation. There is a statue in the park that kind of reminds me of a character from the book."

They all thought about that idea for a second, before Dawn jumped in, "Okay, I think we could work with that...let's all split up into two groups – two of us can go the library to work on the paper, and the rest can get pictures for the presentation." She added a little more, to help justify her thoughts, "Hopefully that will make this easier and get done faster." Nevin could appreciate the divide-and-conquer approach because it meant less work for him, and he swiftly nodded his head in agreement.

Andrea jumped in, "I know this old man who has this unfinished basement that really matches the tone of the story." Andrea started thumbing through the pages for a particular section while she babbled on, "Some of his neighbors say he is grumpy, one said that he has threatened her with his cane...but I've never had a problem with him." She shrugged to no one in particular, acting like the general consensus about this old man was obviously jaded, "I'm sure we could get him to cooperate with our project!" The rest of the members looked around at one another. Shell appreciated Andrea's creative ideas, but she couldn't tell if this girl was serious. Nevin, on the other hand, was always willing to push the envelope and play with fire. Besides, he knew that professors were suckers for adding the human element to your project. Plus, the best case scenario would be that the old man would lose it and would beat Andrea with his stick. A smirk swept across his face - he was definitely all in. Nevin wondered if he should arm himself with his own cane just in case the old man turned on him. He snickered as the hilarious scenarios played out in his head.

Andrea continued, "Oh, and this part," as she eagerly pointed to a paragraph halfway through the book, "it reminds me of this gigantic tree I used to play on as a kid - we have to stop there!" Her voice carried a tone of nerdy excitement. Andrea reached her arm up to make another suggestion but, as always, Nevin quickly intervened and took over. "Great - thanks for your, um, enthusiasm, Andy!"

The mere mention of a nickname made Andrea's hand immediately clench up into a fist and the rest of her body followed suit by tensing up. She glared at Nevin with her hazel eyes, even from behind her glasses. Sensing the negative reaction by Andrea, Michelle quickly moved to diffuse the situation by re-directing the conversation, "I think that Dawn and I can easily handle the written portion. Nae, did you want to join Nevin and Andrea and help them out with the pictures for the presentation?" Shell knew she was putting her friend in a difficult situation. However, she thought that Nae's quiet and friendly manner would work well with these two polar opposites.

Shrugging her shoulders, Naomi quietly said, "Sure." Because she missed the group's first meeting in class, she felt that she needed to conform to the group dynamic that was already in motion. Trying to maintain a positive attitude, she thought that at least she would be getting to know some more students on an unfamiliar campus.

Getting lost in all of the banter, Dawn looked down at the clock on her cellphone and realized she had somewhere else she needed to go. "Sorry to wrap this up everyone, but I have got to go - Shell, let's meet at the library next weekend!" She awkwardly stood for a moment, looking around and fidgeting with her necklaces. Nevin was continuously perplexed by this girl. How could she seem so sure of herself when she spoke, but then show signs of nervousness when she was quiet?

Without thinking, Nevin added, "I want to do the presentation." He shocked himself by his sudden outburst. He never volunteered to have a major role and always did the least amount of work possible. He was the guy that sat back and put his name on the final project. He liked that guy! Who was the guy that just said that? He might have to hit himself with a cane! While having this inner battle, he looked at the book-nerd and the obsessive academic in front on him and decided that it would look weird to retract that offer. So, he decided to stand by his word. To make sure that she heard him correctly, Shell asked, "Seriously, you want to take pictures AND give the presentation?" Shell's personable side told her to give this slacker a shot to shine but her final grade screamed for her not to put her name on anything he did. She had to take a deep breath to compose herself. As she tamed her inner obsessive-compulsive-self, who was squirming at giving up control of her grade, she managed to squeak out, "Okay...I guess I can be good with that."

Nevin stood up, and wrapped up the conversation with a simple, "Good!" He felt a small sense of pride at the way he was able to shock people who thought that they had his personality pinned down. "Mission accomplished," he boasted to himself.

A week later, Nevin was waiting in his car outside of Andrea's house, the agreed meeting ground for their photographic scavenger hunt. After sending Andrea and Nae a text message to let them know he was there, Nevin relaxed into his seat, well as relaxed as one could be in the front seat of a 2005 Honda Civic, listening to some Pink Floyd and texting back and forth with his roommate. After a few minutes of that, there was a tap on his passenger side window. Slightly jolted in his seat, he shot his glance to the right and saw Naomi smiling and waving, giggling at how she freaked him out. And then he realized that the wrist dangling in front of the window was Andrea's. Without rolling down the window, Nevin hollered, "Great, let's get this show on the road!"

Andrea hopped in the front seat while Naomi quietly sat down in the back seat, clutching her oversized purse, which looked even bigger considering how small she was herself. Despite all of her best efforts to tell herself that this was going to go well, she still wasn't convinced she

could handle these two. Too shy to be a referee and too quiet to speak her mind, she decided it was best to keep her distance in case a war broke out.

Andrea pointed toward the left, nearly hitting Nevin in the arm, "Hang a left at the stop sign." Andrea took pleasure in placing the first command to her chauffeur. Ever since the meeting at her place last week, Andrea was seething about Nevin's cocky attitude. The tipping point was when Nevin called her "Andy" – what an ass! Nobody had called her Andy since third grade. Of course, back then she was rolling around in the dirt, playing football with the boys in her class. Since then, she had been trying to shake that tomboy label.

As the suburban scenery passed by, Nevin swayed his head and tapped his fingers to the mellow rhythms of Pink Floyd coming from his stereo. For Nevin, when you listened to Pink Floyd, you LISTENED to Pink Floyd! He really didn't care what the others thought about the music. Anyone who didn't like Pink Floyd lacked refined taste and the trained ear to appreciate music. Lost in the melody, Nevin's trance-like focus on the music was disrupted when Andrea pointed to the park as it emerged from around the corner. Nevin mumbled under his breath, "I saw it, I know where we're going," and proceeded to park the car.

With the car door open, Andrea grabbed her backpack and struggled out of the passenger seat - that small car consumed everyone who sat in it, like it didn't want anyone to leave it. She and Nae closed the car doors at the same time, and Andrea remembered Shell mentioning that Nae didn't have a lot of friends on campus. Andrea decided to extend a friendly hand and started a conversation with Nae as they walked. "Remember, Nae, choose your friends wisely, because there are a lot of jerks at this school who you want to avoid." Nae figured that Andrea was referring to Nevin, but wasn't completely sure, so she gave a polite laugh and said "Thanks for the advice!"

The group moved swiftly through the park as the wind whipped through their sweaters and jackets. This was a brisk Sunday afternoon, and the deceptively strong breeze even caught Naomi's hair, pushing strands of it into her face. Even more surprisingly, it also faintly moved Nevin's excessively styled hair. After a short hike, Andrea came to a halt and exclaimed, "This is it you two!" with her arms spread wide as if she had just found Atlantis. She pulled out her camera and began taking pictures of the giant tree that she had brought up at their earlier meeting. The excitement flowed out of her as she exclaimed, "Isn't this amazing?" Nevin and Nae feigned some excitement with half-hearted smiles, and Andrea continued, "You two should climb up there - that way I can get some pictures of the scene from the story!"

Nae's initial reaction was negative as she asked, "Are you kidding? Those branches don't look sturdy…and besides, how high do you want us to go?" While Nae's response was a little extreme, she did have a point about those branches. However, the real reason that she was refusing was because she had a slight fear of heights.

After observing that reaction, Nevin recognized that this was an opportunity to show off his manly bravado. While Naomi wasn't necessarily his type, you never knew about girls. He sized up the tree and approached the massive trunk. After making a quick assessment to make sure that he could scale it, he reached out and offered a helping hand to her, "Oh come on, it will make Andrea happy." Then, with a wink, he continued, "You wouldn't want to disappoint a nerd like that now would you?" He put on his "Mr. Charming" hat every now and again and it always worked. He got his affirmation as Nae advanced towards him.

As the two of them made their way into the branches, Andrea circled around them with her camera, shouting out encouragement. "This is almost as great as when the protagonist scaled the mountain!" Her enthusiasm was obnoxious to Nevin, but at least he was momentarily

occupied with climbing and making sure that Nae was alright. Besides, the higher they climbed, the less they could hear Andrea's voice.

After snapping a number of pictures, an unusually exorbitant amount if you asked Nevin, Andrea yelled up, "I think I have everything!" As if it was a signal he had been waiting for, Nevin leaped from the branch and, with a slight flail to his arms, landed solidly on the ground with a not-so-humble declaration of "Perfect landing!" It wasn't until then that Nae realized that she would have to get down from there! Like a cat that scampered up a tree only to realize that the prospect of climbing down was even more terrifying, Nae's body shivered involuntarily. She yelled down, "I'm not sure I can jump!" Andrea was trying to encourage her, "You can do it, you'll be fine!" But Nevin was his usual self, "Oh, just jump down already!" Nae took short gasps of breath as she inched herself closer to the edge of the branch, so that she was partially supported by her legs and the rest of her weight was held by her tensed arms. She tried to get a reprieve by shouting, "I don't want to jump," but Nevin was having none of that and ran over as if he was going to start shaking the tree. Seeing that, Nae panicked and pushed herself from the branch and started falling. The fall was quick and, thankfully for her, the landing was softened by a large pile of leaves that scattered into the air as she hit the ground. She started to laugh when she saw that the leaf pile had found a new home covering Nevin. Andrea joined in with a chuckle as Nevin was peeling the leaves out of his hair. His trusty hair gel had turned on him and was holding onto the soft yellow leaves. Nae attempted to erase the amused look off her face by shoving her smile to the side, but it didn't quite work and she giggled all the way back to the car.

Sinking back into the tiny car, Andrea instructed Nevin on how to get to their next destination. As Nevin was lightly bouncing his head to the beat of his favorite band, Andrea looked around for Chuck's house. It had been a while since the two had met but Andrea was still familiar with the neighborhood and located the house easily.

As they walked up the pathway to the front door, Andrea explained, "We usually discuss current events and then he goes on a rant about how things didn't operate that way when he was a kid...you know, typical old people talk." Nevin jumped in with his best old-man impersonation, "When I was a kid I had to walk five miles in the snow, up-hill, to get to school." He mimicked the gravelly voice and hunched over walk of an old man, and while Andrea was annoyed by Nevin's lack of respect, she suppressed the urge to punch him. Andrea simply turned her head, gave him the evil eye, and then knocked on the door.

Slowly opening the door, Chuck braced himself by leaning his weight to the right so that it was supported by his cane. When he saw that it was Andrea, he threw his left arm in the air and hollered, "Hey kid!" while giving Andrea a one-armed embrace. He wasn't quite that warm to Nevin or Nae, as he gave the strangers an agitated wave, as if to say, "Oh, and hello to you bratty kids." As he stepped back to let them in, Chuck continued, "It's great to see you Andrea - it's been a while since you've come by to see me." He tapped a finger to the side of his head and said, "You'll have to forgive me if I repeat myself though, the memory isn't as good as it once was." The three students piled into the house and Nae got a closer look at this "dangerous" old man. While he was somewhat intimidating, age had certainly taken its toll on him and he looked like he would have difficulty punching a pillow with any type of force. Other than that, the only sign of toughness, possibly from his younger days, was that he was missing three teeth. But now, this just made him look old, and it probably was what caused the slight whistle in his speech. After that greeting, Chuck led them toward his basement that Andrea had raved about in the meeting. As he walked through his house, Nevin peered at the knick-knacks from previous family generations that lined the shelves. He noticed that Chuck walked with a shaky grip on his

cane. It loosely hung from two of his fingers as he lifted it up and put it a step in front of him. Nevin thought, “The only thing frightening about this old guy is that he actually LIKES Andrea; maybe that’s what’s wrong with him!” Nevin cracked himself up again, but he kept it to himself because he knew his jokes weren’t always appreciated by others.

At the bottom of the steps, Chuck announced, “Here it is - take your time, just don’t knock anything over.” He pointed at the stacks of newspapers with his cane, “I spent years sorting those piles and everything is where it is supposed to be!” The students nodded to signify that they understood. Having made things clear, Chuck limped toward the kitchen to retrieve a glass tumbler that he filled to the top with a combination of Scotch and ice. Nae and Nevin shot each other a look when they saw the old man imbibing this early in the afternoon. Nevin smiled as he tried to figure out if he could snatch the bottle and sneak a long swig while the old man was distracted.

Nevin’s plan to swipe the Scotch was interrupted when Andrea yelled out, “Here it is - this is just like the cave from the book, isn’t it?” None of this seemed to bother Chuck as he was now at the far end of the basement, lost in a hypnotic state in front of the television with the glass in one hand and a pack of cigarettes in the other. Andrea continued, “I mean you have all these piles of newspapers that make it look historical, and there’s a spookiness if we turn off the lights.” She began snapping away with her camera while Nae and Nevin moved through the piles of boxes and magazines.

Nevin turned to Nae in a low voice, “Isn’t this a fire hazard?” His face had a slight worried look as he pointed his thumb toward Chuck, “If old man Chuck spills his Scotch on one of these piles and drops a cigarette this entire house is toast!” Apparently Andrea heard him because she immediately lowered the camera from her face and shot Nevin the same look she had at the front door. “Be quiet before he hears you!” Andrea sternly whispered across the room. Nevin shot back, “Really? I don’t think he can hear a damn thing!” Nevin chuckled until he hit a stack of boxes, nearly knocking them over.

Nae, who was trying to ignore their annoying conversation, stopped in her path. “Hey guys, I think this is a newspaper from the end of World War II and the atomic bomb!” Her eyes lit up and a shocked look covered her face as she quickly opened the paper and began reading. Andrea rushed over to Nae, close enough so that she could catch a faint whiff of Nae’s hair as she looked over her shoulder at the newspaper. Andrea looked at the newspaper and exclaimed, “I told you that this man was awesome - he has kept every newspaper he has ever gotten!” Then turning back toward Nevin, she added, “People would learn a lot from their elders if they would shut off their iPods and phones and actually listen to people for once!” Her glance focused again on Nevin, who almost knocked over another pile. That caused another reaction from Andrea as she yelled with clenched teeth, “Nevin, you need to watch what you are doing!” Then, she added, “Seriously, you have problems kid.”

Nevin retorted, “Kid, huh?” He motioned with his thumb toward Chuck, “You’ve been hanging out with this old guy so much that you have aged yourself…they better make room in the nursing home for ol’ Andy!” Andrea’s nerves flared up again at the mere mention of the nickname. She went to snap back at him but thought better of it. Instead, she turned her gaze towards Nae and exclaimed, “See - this is what I was telling you before!” as she glared at Nevin. The noise of their argument clearly raised the volume a few decibels because it got Chuck’s attention. Not that he heard any of what they said, but he wasn’t so oblivious to not understand that the young kids weren’t getting along. Chuck called over from the other side of the room, “Andrea, is everything okay?” For a brief moment, old man Chuck thought about standing up

and walking over to check on the group. However, in recent years, his bad hip caused standing to be a struggle, and his family, fearing a nasty fall, made him promise that he would limit the amount he moved around. On top of that, Chuck thought he remembered the term "nursing home" being mentioned somewhere in that conversation, but he couldn't be sure at his advanced age. Chuck valued his independence and would rather that they put a bullet into his skull than ship him off to one of those old folk's homes. Besides, they probably wouldn't let him have his Scotch at that place – one of his only sources of happiness were his early afternoon, mid–afternoon, and after dinner drinks.

Nevin turned to the girls, "This old guy is getting agitated, and I don't want to be here if he gets belligerent and starts swinging that cane." Andrea, who was tired of Nevin's antics, agreed that now would be a good time to go. Andrea stuffed her camera into her backpack and as Nevin and Nae started ascending up the steps, Andrea turned back to Chuck, "We'll let ourselves out – thanks for letting us stop by!" Chuck didn't turn away from the television, but acknowledged the girl with a simple wave of his arm.

The next Monday, Professor Gilmore stood at the podium, sorting through the papers laid out on the tables in front of him, and adjusting the angle of his glasses. As the clock turned to ten o'clock, he stood tall and made a loud cough to get the class's attention. "Please take the first fifteen minutes of class to meet with your group." He scanned his audience, but there was no response, so he asked, "Is that sufficient enough?" Again, the only reactions were a few empty stares, and, of course, a few that kept their heads down. He did not have a smartphone himself, but the professor knew this was always a sure sign of texting – it was either that or they were all perverts for staring at their crotches during class! Professor Gilmore chuckled and told them, "Alright then, have at it!"

Just as Professor Gilmore had finished, Andrea came through the door, arriving late. She didn't have time to put in her contacts, so she was wearing her glasses once more. Right away, she saw that everyone was getting together with their groups, but as she scanned the room, she didn't see anyone from her group. After checking the room a second time, she walked up to Professor Gilmore and asked, "Professor, I don't see anyone here from my group." Professor Gilmore replied, "Calm down," as he patted her on the shoulder, "What are the names of the other students in your group?" Andrea quickly rattled off the members of the group, and the professor checked his class roster. After a moment, his eyes returned to her and he said, "I'm sorry - I received an updated class roster this morning, and all of those students are listed as having dropped this class." Andrea was shocked by this news and asked, "So what do I do about the project?" Professor Gilmore, with no hesitation, replied, "I suppose you will have to complete this entire project by yourself." With a sigh and an agitated look, she blurted out, "Just my luck!"

Version A (excerpt)

As Nevin went to stash his ear buds, he was interrupted by a voice, "Did you read this story?" As he looked to find the source of this annoyingly enthusiastic voice, she continued, "It's staggering and definitely worth the read!" The words came from a thin (some might say scrawny) student who was pointing to the short story that would become the basis of their project. She looked to be about Nevin's age, a sophomore like him. Sitting down next to Nevin, they immediately caught each other's eyes and sized each other up. Andrea, in contrast to Nevin, enjoyed not only opening up books, but also reading every word on every page. She waved to Nevin while introducing herself and asking, "*Please* tell me you read the story?" The square Ray

Ban sunglasses sitting atop her head helped push the overwhelming volume of her long, red hair away from her face. Andrea wore a worn, brown leather jacket, which looked like she stole it from her mother's closet. In her mind, it was just old enough to be called vintage. Nevin thought it made her look silly, but at least she wasn't wearing a North Face jacket and Ugg boots like every other white girl at this school. Andrea was majoring in English and was a frequent visitor to the study area on the third floor of the library.

Nevin's attention quickly shifted again when he saw another student make eye contact with him. This student was a petite, young blonde girl with very pale skin who was approaching him from the side. She looked to be a little younger than the other two, perhaps a freshman. She wore a loose, black hooded jacket, with an Indie rock band T-shirt underneath paired with tight fitting blue jeans and some worn boots. Nevin guessed that she had never been to a concert, but only wore that T-shirt to look cool. Her neck was laced with several different necklaces, which she played with during class, weaving them in and out of her fingers. She convinced herself that it made the time go by faster. She shook Nevin's hand with a very loose grip and introduced herself as Dawn as she quickly sat in the chair on the other side of him. Nevin's first impression was that she was a pushover and assumed that she would be very easy to boss around. "No confrontation issues here," he thought.

As Nevin was assessing Dawn, Michelle finally made her way over and was carrying a handful of textbooks while leaning to the side, to steady her heavy backpack on her shoulder. Michelle, or Shell, as her friends called her, typically sat in the front row, so that she could pay attention to everything that the professor said. She was a mature twenty-year-old junior and had several semesters under her belt to know that listening in class was important to her academic success. To Shell, top scores were easy to attain as long as you paid attention and took detailed notes. Of course, this was made much easier by sitting in the front of the room and maintaining proper posture. Shell was regularly mistaken for being older than she really was, and it was probably because she was very tall for a woman, standing just over six feet. Shell's height was almost always the first thing people noticed about her, besides the dark brown tone of her skin. She always preferred to keep her hair quite long. However, her long hair meant that she would regularly have to brush a stray piece of hair back from her eyes. Despite her discipline to her own study habits, she was very warm and welcoming to others. Shell knew how to handle difficult situations and move through them quickly, which she believed was a great characteristic for group work.

Version B (excerpt)

As Nevin went to stash his ear buds, he was interrupted by a voice, "Did you read this story?" As he looked to find the source of this annoyingly enthusiastic voice, she continued, "It's staggering and definitely worth the read!" The words came from a female student who was pointing to the short story that would become the basis of their project. Sitting down next to Nevin, they immediately caught each other's eyes and sized each other up. Andrea, in contrast to Nevin, enjoyed not only opening up books, but also reading every word on every page. She waved to Nevin while introducing herself and asking, "*Please* tell me you read the story?" The square Ray Ban sunglasses sitting atop her head made her look ridiculous to Nevin. Andrea had put on a worn, brown leather jacket, which looked like she stole it from her mother's closet. In her mind, it was just old enough to be called vintage. Andrea was majoring in English and was a frequent visitor to the study area on the third floor of the library.

Nevin's attention quickly shifted again when he saw another student make eye contact with him. This student was a petite, young blonde girl with very pale skin who was approaching him from the side. Her long hair was so full and thick that it made her head look small in comparison, but it complimented her blue eyes well. She looked to be a little younger than the other two, perhaps a freshman, and she easily shorter than the average girl her age. She wore a loose, black hooded jacket, with an Indie rock band T-shirt underneath paired with tight fitting blue jeans and some worn boots. Nevin guessed that she had never been to a concert, but only wore that T-shirt to look cool. Her neck was laced with several different necklaces, which she played with during class, weaving them in and out of her fingers. She convinced herself that it made the time go by faster. She shook Nevin's hand with a very loose grip and introduced herself as Dawn as she quickly sat in the chair on the other side of him. Nevin's first impression was that she was a pushover and assumed that she would be very easy to boss around. "No confrontation issues here," he thought.

As Nevin was assessing Dawn, Michelle finally made her way over and was carrying a handful of textbooks while leaning to the side, to steady her heavy backpack on her shoulder. Michelle, or Shell, as her friends called her, typically sat in the front row, so that she could pay attention to everything that the professor said. She was a mature twenty-year-old junior and had several semesters under her belt to know that listening in class was important to her academic success. To Shell, top scores were easy to attain as long as you paid attention and took detailed notes. Of course, this was made much easier by sitting in the front of the room and maintaining proper posture. Shell was regularly mistaken for being older than she really was, and it was probably because she was very tall for a woman, standing just over six feet tall with a thin, but slightly awkward, body type. Shell's height was almost always the first thing people noticed about her, besides the dark brown tone of her skin. All of her weight was carried in her hips, which meant that she had very bony arms and shoulders. She kept her black hair quite long to help hide her thin upper body. However, her long hair meant that she would regularly have to brush a stray piece of hair back from her eyes. Despite her discipline to her own study habits, she was very warm and welcoming to others with a certain kindness evident in her brown eyes. Shell knew how to handle difficult situations and move through them quickly, which she believed was a great characteristic for group work.

Version C (excerpt)

As Nevin went to stash his ear buds, he was interrupted by a voice, "Did you read this story?" As he looked to find the source of this annoyingly enthusiastic voice, she continued, "It's staggering and definitely worth the read!" The words came from a thin (some might say scrawny) student who was pointing to the short story that would become the basis of their project. Sitting down next to Nevin, they immediately caught each other's eyes and sized each other up. Andrea, in contrast to Nevin, enjoyed not only opening up books, but also reading every word on every page. She waved to Nevin while introducing herself and asking, "*Please* tell me you read the story?" The square Ray Ban sunglasses sitting atop her head helped push the overwhelming volume of her long, red hair away from her face. Andrea appeared very thin underneath her worn, brown leather jacket, which looked like she stole it from her mother's closet. In her mind, it was just old enough to be called vintage. Nevin thought it made her look silly, but at least she wasn't wearing a North Face jacket and Ugg boots like every other white girl at this school. Andrea was majoring in English and was a frequent visitor to the study area on the third floor of the library.

Nevin's attention quickly shifted again when he saw another student make eye contact with him. This student was an unfamiliar girl who was approaching him from the side. She wore a loose, black hooded jacket, with an Indie rock band T-shirt underneath paired with tight fitting blue jeans and some worn boots. Nevin guessed that she had never been to a concert, but only wore that T-shirt to look cool. Her neck was laced with several different necklaces, which she played with during class, weaving them in and out of her fingers. She convinced herself that it made the time go by faster. She shook Nevin's hand with a very loose grip and introduced herself as Dawn as she quickly sat in the chair on the other side of him. Nevin's first impression was that she was a pushover and assumed that she would be very easy to boss around. "No confrontation issues here," he thought.

As Nevin was assessing Dawn, Michelle finally made her way over and was carrying a handful of textbooks while leaning to the side, to steady her heavy backpack on her shoulder. Michelle, or Shell, as her friends called her, typically sat in the front row, so that she could pay attention to everything that the professor said. She had several semesters under her belt to know that listening in class was important to her academic success. To Shell, top scores were easy to attain as long as you paid attention and took detailed notes. Of course, this was made much easier by sitting in the front of the room and maintaining proper posture. Shell was regularly mistaken for being older than she really was, and it was probably because maturity and poise. Despite her discipline to her own study habits, she was very warm and welcoming to others. Shell knew how to handle difficult situations and move through them quickly, which she believed was a great characteristic for group work.

APPENDIX B

LIST OF CHARACTERS AND ATTRIBUTES (EXPERIMENT 1)

1. Professor Gilmore: black rimmed glasses, slightly gray hair, old age, full head of hair, tall stature
2. Nevin: average height, five-foot nine-inches [tall], sandy brown hair, green eyes, short hair, excessively styled hair
3. Andrea: thin, scrawny, overwhelming volume of… hair, long… hair, red hair
4. Dawn: petite, young, blonde, about [Nevin's] age, few inches short than [Nevin]
5. Michelle: twenty year old, very tall, just over six feet tall, thin, dark brown hair, quite long [hair]
6. Naomi: much shorter [than Michelle], subtle good looks, faint purple streaks… [with] dark hair, short hair
7. Joshua: eight year-old, really tall for his age, thin square glasses, lanky body frame, shoulder length… hair, brown hair
8. Zoran: same age [as Joshua]
9. Chuck: old man, large and imposing

LIST OF CHARACTERS AND ATTRIBUTES (EXPERIMENT 2)

Version A

1. Professor Gilmore
    a. Age: Fifties
    b. Hair color: Brown with gray temples
    c. Hair length/style: Short, full
    d. Height: Tall
    e. Race: White
    f. Glasses: Yes
    g. Eye color: Light blue
    h. Body shape: Thin
2. Nevin
    a. Age: Sophomore
    b. Hair color: Sandy brown
    c. Hair length/style: Short
    d. Height: Average
    e. Race: American Indian
    f. Glasses: No
    g. Eye color: Green
    h. Body shape: Average
3. Andrea
    a. Age: Sophomore
    b. Hair color: Red
    c. Hair length/style: Long, full
    d. Height: Short

    e. Race: White
    f. Glasses: Occasionally
    g. Eye color: Hazel
    h. Body shape: Thin
4. Dawn
    a. Age: Freshman
    b. Hair color: Blonde
    c. Hair length/style: Not present
    d. Height: Not present
    e. Race: White
    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Thin
5. Michelle
    a. Age: Junior
    b. Hair color: Not present
    c. Hair length/style: Long
    d. Height: Very tall
    e. Race: African American
    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Not present
6. Naomi
    a. Age: Not present
    b. Hair color: Black/purple
    c. Hair length/style: Not present
    d. Height: Very short
    e. Race: Asian American
    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Athletic
7. Joshua
    a. Age: Not present
    b. Hair color: Not present
    c. Hair length/style: Not present
    d. Height: Not present
    e. Race: Not present
    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Not present
8. Zoran
    a. Age: Not present
    b. Hair color: Not present
    c. Hair length/style: Not present
    d. Height: Not present
    e. Race: Not present

    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Not present
9. Chuck
    a. Age: Not present
    b. Hair color: Not present
    c. Hair length/style: Not present
    d. Height: Not present
    e. Race: Not present
    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Not present

Version B

1. Professor Gilmore
    a. Age: Not present
    b. Hair color: Not present
    c. Hair length/style: Not present
    d. Height: Not present
    e. Race: Not present
    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Not present
2. Nevin
    a. Age: Not present
    b. Hair color: Not present
    c. Hair length/style: Not present
    d. Height: Not present
    e. Race: Not present
    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Not present
3. Andrea
    a. Age: Not present
    b. Hair color: Not present
    c. Hair length/style: Not present
    d. Height: Not present
    e. Race: Not present
    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Not present
4. Dawn
    a. Age: Freshman
    b. Hair color: Blonde
    c. Hair length/style: Long, full

    d. Height: Short
    e. Race: White
    f. Glasses: No
    g. Eye color: Blue
    h. Body shape: Thin
5. Michelle
    a. Age: Junior
    b. Hair color: Black
    c. Hair length/style: Long
    d. Height: Very tall
    e. Race: African American
    f. Glasses: No
    g. Eye color: Brown
    h. Body shape: Thin
6. Naomi
    a. Age: Freshman
    b. Hair color: Black/purple
    c. Hair length/style: Short, medium
    d. Height: Very short
    e. Race: Asian American
    f. Glasses: Occasionally
    g. Eye color: Brown
    h. Body shape: Athletic
7. Joshua
    a. Age: Not present
    b. Hair color: Red
    c. Hair length/style: Not present
    d. Height: Tall
    e. Race: White
    f. Glasses: No
    g. Eye color: Not present
    h. Body shape: Not present
8. Zoran
    a. Age: 8
    b. Hair color: Not present
    c. Hair length/style: Full
    d. Height: Not present
    e. Race: Hawaiian/Pacific Islander
    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Few extra pounds
9. Chuck
    a. Age: Eighties
    b. Hair color: Gray
    c. Hair length/style: Short, thin
    d. Height: Not present

e. Race: Not present
f. Glasses: Not present
g. Eye color: Not present
h. Body shape: Stocky

Version C

1. Professor Gilmore
    a. Age: Not present
    b. Hair color: Brown with gray temples
    c. Hair length/style: Not present
    d. Height: Tall
    e. Race: Not present
    f. Glasses: Yes
    g. Eye color: Light blue
    h. Body shape: Not present
2. Nevin
    a. Age: Not present
    b. Hair color: Sandy brown
    c. Hair length/style: Not present
    d. Height: Average
    e. Race: Not present
    f. Glasses: No
    g. Eye color: Not present
    h. Body shape: Average
3. Andrea
    a. Age: Not present
    b. Hair color: Red
    c. Hair length/style: Long, full
    d. Height: Not present
    e. Race: White
    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Thin
4. Dawn
    a. Age: Not present
    b. Hair color: Not present
    c. Hair length/style: Not present
    d. Height: Not present
    e. Race: Not present
    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Not present
5. Michelle
    a. Age: Not present
    b. Hair color: Not present

    c. Hair length/style: Not present
    d. Height: Not present
    e. Race: Not present
    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Not present
6. Naomi
    a. Age: Not present
    b. Hair color: Not present
    c. Hair length/style: Not present
    d. Height: Not present
    e. Race: Not present
    f. Glasses: Not present
    g. Eye color: Not present
    h. Body shape: Not present
7. Joshua
    a. Age: 8
    b. Hair color: Red
    c. Hair length/style: Medium
    d. Height: Tall
    e. Race: White
    f. Glasses: Yes
    g. Eye color: Blue
    h. Body shape: Chubby
8. Zoran
    a. Age: 8
    b. Hair color: Black
    c. Hair length/style: Full
    d. Height: Short
    e. Race: Hawaiian/Pacific Islander
    f. Glasses: Yes
    g. Eye color: Brown
    h. Body shape: Few extra pounds
9. Chuck
    a. Age: Eighties
    b. Hair color: Gray
    c. Hair length/style: Short/thin
    d. Height: Average
    e. Race: White
    f. Glasses: Occasionally
    g. Eye color: Blue
    h. Body shape: Stocky

APPENDIX C

Multiple-Choice Answers

What was his/her age group?

1. Elementary school (5-13 years old)
2. High school (14-18 years old)
3. College freshman (19 years old)
4. College sophomore (20 years old)
5. College junior (21 years old)
6. College senior (22 years old)
7. Young adult (20s-30s)
8. Middle-aged (40s-50s)
9. Elderly (60s+)
10. Not present [in the story/in my representation]

What color was his/her hair?

1. Blonde
2. Red
3. Green
4. Blue
5. Purple
6. Brown
7. Black
8. Salt/Pepper
9. Gray or White
10. Not present [in the story/in my representation]

Describe his/her hair style / hair length. (Check all that apply.)

1. Long (past the shoulders)
2. Moderate (between shoulders and chin)
3. Short (above the ear)
4. Full/Thick
5. Medium Thickness
6. Noticeably Thinning
7. Not present [in the story/in my representation]

What was his/her height?

1. Very short
2. Short
3. Average
4. Tall
5. Very tall
6. Not present [in the story/in my representation]

Describe his/her race/ethnicity/skin color.

1. American Indian or Alaskan Native
2. Asian
3. Black or African American
4. Hispanic or Latino
5. Native Hawaiian or Other Pacific Islander
6. White or Caucasian
7. Not present [in the story/in my representation]

Did this character wear glasses?

1. Yes
2. No
3. Occasionally
4. Not present [in the story/in my representation]

What was his/her eye color?

1. Blue
2. Brown
3. Green
4. Hazel
5. Other
6. Not present [in the story/in my representation]

What was his/her body shape?

1. Thin
2. Athletic
3. Average
4. Few extra pounds
5. Chubby/Stocky
6. Obese
7. Not present [in the story/in my representation]

REFERENCES

Alba, J. W., & Hasher, L. (1983). Is memory schematic? *Psychological Bulletin, 93*(2), 203-231.

Albrecht, J. E., & O'Brien, E. J. (1993). Updating a mental model: Maintaining both local and global coherences. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *19*(5), 1061-1070.

Anderson, J. R. (1974). Retrieval of propositional information from long-term memory. *Cognitive Psychology, 6*(4), 451-474.

Bower, G. H., Black, J. B., & Turner, T. J. (1979). Scripts in memory for text. *Cognitive Psychology, 11,* 177-220.

Bransford, J. D., & Franks, J. J. (1971). The abstraction of linguistic ideas. *Cognitive Psychology*, *2*(4), 331-350.

Carreiras, M., Garnham, A., Oakhill, J., & Cain, K. (1996). The use of stereotypical gender information in constructing a mental model: Evidence from English and Spanish. *Quarterly Journal of Experimental Psychology, 49A*(3), 639-663.

Copeland, D. E., Radvansky, G. A., & Goodwin, K. A. (2009). A novel study: Forgetting curves and the reminiscence bump. *Memory, 17*(3), 323-336.

Cothern, N. B., Konopak, B. C., & Willis, E. L. (1990). Using readers' imagery of literary characters to study text meaning construction. *Reading Research And Instruction, 30*(1), 15-29.

Ehrlich, K., & Johnson-Laird, P.N. (1982). Spatial descriptions and referential continuity. *Journal of Verbal Learning and Verbal Behavior, 21*(1), 296-306.

Fletcher, C. R., & Chrysler, S. T. (1990). Surface forms, textbases, and situation models: Recognition memory for three types of textual information. *Discourse Processes, 13*(2), 175-190.

Gernsbacher, M. A., Goldsmith, H. H., & Robertson, R. R. (1992). Do readers mentally represent characters' emotional states? *Cognition & Emotion, 6*(2), 89-111.

Gernsbacher, M. A., Robertson, R. R. W., Palladino, P., & Werner, N. K. (2004). Managing mental representations during narrative comprehension. *Discourse Processes, 37*(2), 145-164.

Gerrig, R. J., Brennan, S. E., & Ohaeri, J. O. (2001). What characters know: Projected knowledge and projected co-presence. *Journal of Memory and Language, 44*(1), 81-95.

Gerrig, R. J., Love, J., & McKoon, G. (2009). Waiting for Brendan: How readers respond to small mysteries. *Journal of Memory and Language, 60*, 144-153.

Glenberg, A.M., Meyer, M., & Lindem, K. (1987). Mental models contribute to foregrounding during text comprehension. *Journal of Memory and Language, 26*(1), 69-83.

Gómez-Ariza, C. J., & Bajo, M. T. (2003). Inference and integration: The fan effect in children and adults. *Memory, 11*(6), 505-523.

Houska, J. A. (2011). The influence of perspective and gender on the processing of narratives. *Dissertation Abstracts International, 71*, 7128.

Kole, J. A., & Healy, A. F. (2007). The effects of memory set size and information structure on learning and retention. *Psychonomic Bulletin & Review, 14*(4), 693-698.

Lichtenstein, E. H., & Brewer, W. F. (1980). Memory for goal-directed events. *Cognitive Psychology, 12*(3), 412-445.

Love, J., McKoon, G., & Gerrig, R. J. (2010). Searching for Judy: How small mysteries affect narrative processes and memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 36*(3), 790-796.

Luh, C. W. (1922). The conditions of retention. *Psychological Monographs, 31*.

Mandler, J. M. (1986). On the comprehension of temporal order. *Language and Cognitive Processes, 1*(4), 309-320.

Mensink, M. C., & Rapp, D. N. (2011). Evil geniuses: Inferences derived from evidence and preference. *Memory & Cognition, 39*(6), 1103-1116.

Morra, S., & Guðbjörnsdóttir, G. (2009). Mental representation of literary characters as a distinct aspect of response to literature. *Scandinavian Journal of Educational Research, 53*(6), 591-615.

Morris, C. D., Stein, B. S., & Bransford, J. D. (1979). Prerequisites for the utilization of knowledge in the recall of prose passages. *Journal of Experimental Psychology: Human Learning and Memory, 5*(3), 253-261.

Noh, S. R., & Stine-Morrow, E. A. L. (2009). Age differences in tracking characters during narrative comprehension. *Memory & Cognition, 37*(6), 769-778.

O'Brien, E. J., Rizzella, M. L., Albrecht, J. E., & Halleran, J. G. (1998). Updating a situation model: A memory-based text processing view. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 24*(5), 1200-1210.

Peracchi, K. A., & O'Brien, E. J. (2004). Character profiles and the activation of predictive inferences. *Memory & Cognition, 32*(7), 1044-1052.

Radvansky, G. A., & Copeland, D. E. (2000). Functionality and spatial relations in memory and language. *Memory & Cognition, 28*, 987-992.

Radvansky, G.A., & Copeland, D.E. (2010). Reading times and the detection of event shift processing. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 36*(1), 210-216.

Radvansky, G. A., Copeland, D. E., & Zwaan, R. A. (2003). Aging and functional spatial relations in comprehension and memory. *Psychology and Aging, 18*, 161-165.

Radvansky, G.A., & Zacks, R. T. (1991). Mental models and the fan effect. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 17*(5), 940-953.

Rapp, D. N., Gerrig, R. J., & Prentice, D. A. (2001). Readers' trait-based models of characters in narrative comprehension. *Journal of Memory and Language, 45*(4), 737-750.

van Dijk, T. A., & Kintsch, W. (1983). *Strategies of discourse comprehension*. New York: Academic Press.

Zwaan, R. A. (1994). Effects of genre expectation on text comprehension. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 20*(4), 920-933.

Zwaan, R. A. (1996). Processing narrative time shifts. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 22*(5), 1196-1207.

Zwaan, R. A. (1999). Situation models: The mental leap into imagined worlds. *Current Directions in Psychological Science, 8*(1), 15-18.

Zwaan, R. A., Langston, M. C., & Graesser, A. C. (1995). The construction of situation models in narrative comprehension: An event-indexing model. *Psychological Science, 6*(5), 292-297.

Zwaan, R. A., Magliano, J. P., & Graesser, A. C. (1995). Dimensions of situation model construction in narrative comprehension. *Journal of Experimental Psychology: Learning, Memory, and Cognition, 21*(2), 386-397.

Zwaan, R. A., & Radvansky, G. A. (1998). Situation models in language comprehension and memory. *Psychological Bulletin, 123*(2), 162-185.

Zwaan, R. A., & van Oostendorp, H. (1993). Do readers construct spatial representations in naturalistic story comprehension? *Discourse Processes, 16*(1-2), 125-143.

CURRICULUM VITAE

The Graduate College
University of Nevada, Las Vegas

Michael T. Palena

Degrees:
Bachelor of Arts – Psychology, 2013
University of Notre Dame, Notre Dame, IN

Publications:
Copeland, D. E., Larson, K. G., & Palena, M. T. (2015). Remembering stories: Constructing elaborate situation models in memory. In K. Brakke & J. A. Houska (Eds.). *Telling stories: The art and science of storytelling as an instructional strategy*. Society for the Teaching of Psychology: http://teachpsych.org/ebooks/tellingstories.html

Presentations:
Palena, M. T., & Copeland, D. E. (2016, May). *Imagination influences memory of minor (but not major) characters in a story*. Poster presented at the meeting of the Association for Psychological Science, Chicago, IL.

Palena, M. T., & Copeland, D. E. (2016, November). *Imagination influences memory of minor (but not major) characters in a story*. Poster presented at the meeting of the Psychonomic Society, Boston, MA.

Thesis Title:
An Examination of Accuracy and Elaborations for Character Traits in a Narrative

Thesis Examination Committee:
Chairperson: David E. Copeland, Ph.D.
Committee Member: Mark H. Ashcraft, Ph.D.
Committee Member: Murray G. Millar, Ph.D.
Graduate College Representative: CarolAnne M. Kardash, Ph.D.