Emotional Reactions to Reading a Short Story

Kirsten Bushman

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Approved: ____________________________ Date: __________

Thesis Director Signature

Nicole Rivera, Ed.D.

Approved: ____________________________ Date: __________

Second Reader Signature

Matthew Kirkpatrick, Ph.D.
# Table of Contents

Abstract ............................................................................................................................................3

Acknowledgements ..........................................................................................................................4

Introductory Literature Review........................................................................................................5
  Theory of Emotion ..........................................................................................................................5
  Fiction and Emotion .......................................................................................................................8
    Emotions experienced within the text ...............................................................................................9
    Relating to and understanding the text .........................................................................................11
  Emotional Reactions to Reading .....................................................................................................12
  Personality and Emotional Reactivity .............................................................................................15
    Defining extraversion and introversion .........................................................................................15
    Extraversion as a determinant of emotions ..................................................................................15
  Current Study ..................................................................................................................................19

Methods............................................................................................................................................20
  Participants .......................................................................................................................................20
  Procedure ..........................................................................................................................................20
    Questionnaire classification phase ..............................................................................................21
    Reading task phase .......................................................................................................................21

Results ............................................................................................................................................24
  Reader Rating .................................................................................................................................24
  Analyzing Pleasantness ...................................................................................................................24
  Analyzing Arousal ...........................................................................................................................26
  Introvert and Extravert Case Studies ...............................................................................................28
    Limited Emotions ...........................................................................................................................29
    Extreme Changes ...........................................................................................................................31
    Emotional Optimist ........................................................................................................................33
    Married Exception ...........................................................................................................................35
    Deep Connection ............................................................................................................................36

Discussion ......................................................................................................................................38
  Extraversion as a Factor of Emotional Reaction ............................................................................40
  Personal Experiences as a Factor of Emotional Reaction ...............................................................41
  Factoring in Textual and Moral Understanding ................................................................................44
  Limitations and Further Research ..................................................................................................45
  Conclusion .......................................................................................................................................47

References ......................................................................................................................................49

Appendices ......................................................................................................................................51
Abstract

Research establishes that emotional reactions may have connections to reading and personality traits. In the current study, the researcher investigates how differences in extraversion predict an individual’s emotional change while reading “Call If You Need Me” by Raymond Carver (2009). Based on previous literature, it was hypothesized that extraverts would respond with more positive emotions to the narrative, while introverts would respond with more arousal. Eleven introverts and seven extraverts completed Affect Grids to measure their affective change while reading Carver’s (2009) story and were interviewed to gain insight into their emotional reactions. While results did not support the hypotheses, introverts tended to react with higher pleasantness as compared to extraverts, and extraverts reacted with higher arousal. Qualitative interviews revealed that emotional reactions were linked to personal experiences with similar characteristics to the events dictated in the story. Further research in the area of emotional reactions to literature and extraversion is necessary.
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Emotional Reactions to Reading a Short Story

Emotions are complex constructs laden with physiological, behavioral, and cognitive implications. Much research has been devoted to understanding emotions and their manifestations; however, there is little consensus on the topic within the field of psychology. In the present study, reading-invoked emotions and the link to personality traits are investigated. In order to grasp the complex nature of emotions, general theories about emotions, their connections to reading fiction, and, finally, the emotional reactivity associated with personality are discussed.

Theory of Emotion

Humans are emotional creatures. Emotions can be elicited in a variety of ways, including everyday exchanges with other individuals, recollections of past emotional events, and even internal thought processes. Emotions are complex, and thus, there is no single definition of emotion. Plutchik (1980) unites the definitions provided by the theories of early psychologists in an encompassing psychoevolutionary structural model of emotion. Through his analysis of early theories and research, he suggests that emotions can be explained through subjective, behavioral, and functional language. Subjective language suggests that emotions are based on an intensity dimension, which links different dimensions of primary emotions together. For example, anger, a primary emotion, could also be described as “annoyance, irritation…rage, and fury” depending on the intensity to which the emotion is felt (Plutchik, 1980, p. 154). When describing emotion with behavioral language, it takes the form of a continuous action, such as withdrawing, escaping, or attacking. Finally, functional language suggests emotions have a specific purpose when an individual reacts in a particular way (Plutchik, 1980).
The languages of emotion, when working together, are the foundation for the definition of emotion, according to Plutchik (1980). After a stimulus event occurs, an individual appraises the event to determine its subjective importance. From here, an individual can respond with a behavioral reaction corresponding to a particular function. Plutchik provides the example of coming in contact with a predator. A human facing a hungry bear would appraise the animal as a danger. His subjective reaction is fear, a primary emotion, and, in turn, his behavioral reaction to run provides the function of protection (Plutchik, 1980). With this synthesis, Plutchik suggests that emotions are not only functional, but adaptive.

While Plutchik’s (1980) synthesis of the adaptive nature of emotion is important to this field of research, it is missing the factor that makes emotion a uniquely human experience: the conscious identification of emotion. Frijda (1986) is just one of many researchers to provide an analysis of emotion and emotional understanding. Through his in-depth analysis of emotions, he postulates that emotions, elicited by mental or external events, are changes in action readiness with “features of behaviors, physiological changes, and…subject-related experiences” (Frijda, 1986, p. 4). Emotions, according to Frijda, are essentially changes in an individual’s disposition to perform an action in response to an internal or external event, a change that is usually defined by a conscious feeling like anger, happiness, sadness, and others. The action readiness of an individual is quite similar to the sequence of events Plutchik (1980) defined, though Frijda’s conception of emotion includes a conscious identification of the emotion. Along with these processes come physiological changes, such as increased heart rate. Naming an emotion as anger or happiness, for example, is based on the event that is experienced, the change in readiness, or the action an individual is preparing to perform, and physiological changes (Frijda, 1986).
While Plutchik (1980) and Frijda (1986) highlight the influence of biological and physiological components of emotion, they miss the importance of cognitions within the experience of emotions. Solomon (2004) understands that the experience of emotion is not just a physiological or phenomenological reaction that renders individuals passive objects of emotions, but also a cognitively driven response. He suggests that emotions, depending on their duration, can be unconscious or conscious manifestations. A momentary emotional response, perhaps to a sudden experience of danger, is inherently unconscious and biological. There is simply not enough time between the event and our emotion to think about how to react. However, emotional states are often produced “through deliberation and reflection, starting from nothing” (Solomon, 2004, p. 20). For example, grief is commonly rooted in cognitions or reflections. There is an event that is cognitively reacted to, such as with the realization of losing a loved one, from which the physiological reaction detailed by Plutchik (1980) and Frijda (1986) occurs. In this case, however, without the reflection and understanding of the event, the emotion would not have been possible. In addition, even those emotions that appear to be unconscious reactions can be conceptualized cognitively. After experiencing an immediate emotional reaction, such as in the case of experiencing fear, an individual is able to accurately dictate why the feeling occurred and what it felt like, suggesting that even those responses that do not appear to have cognitive connections are cognitively relevant (Solomon, 2004).

This emotional-cognitive connection is demonstrated in a number of ways. One way suggests that in order for emotions to fully manifest, individuals must focus on their emotional reactions in response to stimuli. Kron, Schul, Cohen, and Hassin (2010) investigated the effect of cognitive load on the intensity of feeling with a series of experiments. In these studies, intensity of feelings was tested while participants either focused on completing a secondary distractor task
or focused solely on describing their feelings from witnessing emotional images. In both cases, intensity of both negative and positive feelings diminished significantly due to the cognitive load on the participants (Kron, et al., 2010). In essence, by diverting attention to other tasks or objects, even if that task involved the emotions in question, participants experienced less intense emotional reactions than they would have had they been able to give significant attention to the emotions. Ultimately, this suggests that not only is there a cognitive process for the development of emotions, but also that the thoughts and cognitions associated with this process are necessary for experiencing emotion altogether.

Emotions can be unconscious and conscious manifestations to stimuli. Cognitions are imperative to understanding immediate emotional reactions as well as developing complicated emotional states, as evidenced by Solomon (2004) and Kron, et al. (2010). On the other hand, as Plutchik (1980) and Frijda (1986) reveal, emotions can also be connected to biological and behavioral phenomena. Taking both of these arguments into consideration, differences in personality, which inform both cognitive and behavioral factors, may be able to predict how an individual will emotionally react to a given stimulus. The presented study seeks to verify this prediction. Specifically, does an individual’s level of extraversion predict affect change while reading a fictional short story?

**Fiction and Emotion**

Emotions are experienced in a variety of situations in everyday life. However, emotions can also be experienced while reading. In fact, Oatley (2012) suggests in his chapter in *Personality, Cognition and Emotion* that the emotions experienced while reading are “thought of as being special, in some ways similar to but in other ways unlike, the everyday emotion to which they correspond” (p. 113). They can represent emotions experienced from real situations.
and can even be as strong as everyday emotions. For the most part, when someone reaches for a fictional work, they are expecting to be moved emotionally (Mar, Oatley, Djikic, & Mullin, 2011). Fiction, in the form of poetry, novels, or short stories, is an emotional experience.

**Emotions experienced within the text.** Oatley (1994) discusses several different categories of emotions that are elicited from reading in his emotion taxonomy. Based on Frijda’s (1986) theory of emotions, Oatley presents this taxonomy, as well as a theory of identification in fiction. He suggests that experienced emotions differ depending on where the reader is in relation to the text. If the reader remains outside of the text, they are simply a person and a book. The emotions experienced from outside are described as “the pleasures of reading, the satisfaction of curiosity, surprises that render things unfamiliar,” and are essentially feelings of arousal from reading (Oatley, 1994, p. 55). However, when entering into the world of the narrative, the reader becomes deeply connected to the text, the plot, and the characters. These emotions require that the reader enters the “membrane of the narrative world” and become a part of this fictional world (Oatley, 1994, p. 61).

Oatley suggests that there are three emotional experiences readers have when inside the narrative world: sympathy, memories, and identification. Sympathy can be a mental link from one individual to another as a way of communicating emotional understanding. A reader makes such a connection with a narrative’s characters or narrator instead of a real human being (Oatley, 1994). Though the reader is interacting with a fictional individual, the emotional connection of sympathy still exists. Oatley suggests that sympathy is experienced over other connecting emotions because of the nature of reading. The reader witnesses the events happening to the characters within the narrative world and cannot control what happens to the characters. The reader cannot feel the same emotions as the character because of their relation to the events. The
reader is not experiencing the events for him- or herself but witnessing a character experience the events instead. In effect, the reader becomes an invisible bystander, unable to do anything for the character, and thus experiences sympathy (Oatley, 1994).

In addition to experiencing sympathy for the characters, a reader inside the membrane of the narrative world relives emotional memories. Through immersion into emotional events within a fictional world, a reader can re-experience personal emotional events similar to those that the characters are experiencing, a process of creatively applying previous experiences to understand new and different experiences. Oatley further suggests that this occurrence of relived emotional memories can be therapeutic to the reader. An overwhelming emotional event can be “recognized, experienced, assimilated,” and even a painful event “can come alive, so that its significance and ramifications can be comprehended, connections made” so that the reader can come to terms with these events from his or her past (Oatley, 1994, p. 63). Reading, then, transforms from being an emotional experience to a therapeutic experience.

Finally, Oatley suggests the theory of identification, first described by Freud in 1904, is an emotional experience by a reader within the narrative world. According to Oatley, emotions are experienced through and “mediated by a psychological process in which the reader…takes on characteristics of the fictional character” (1994, p. 64). As a character reacts to an obstacle within the narrative world and develops goals to overcome this obstacle, the reader finds a reason within him- or herself to develop the same goal. Because of this identification with the character, the reader takes on some of the behaviors and attitudes held by the character, ultimately becoming like the character he or she identified with in the first place (Oatley, 1994). The emotions experienced by the character then become the emotions experienced by the reader. Identification breaks down the invisible barrier between the reader and the characters, leading to emotions that
are more than just sympathy and the reader’s own relived emotional memories. Despite the differences between these experienced emotions, each occurs because the reader is connecting emotionally with either the characters or the events of the fictional piece.

Relating to and understanding text. While the emotions of reading fiction are generally experienced by all, the ability to relate to and understand a text or narrative work differs between individuals. Genereux and McKeough (2007) studied the changes in narrative interpretation of students in fourth through twelfth grade. In order to study this, participants were asked to read a short story that incorporated two sub-stories and multiple layers of meaning. After reading, participants were asked to summarize the story, describe the main characters, and identify the morals found within the story. In order to determine the moral understanding of the participants, these responses were reviewed and scored for their complexity and social-psychological content in regards to moral narrative understanding. According to the results of the study, students in grade 12, approximately 17 years of age, have advanced moral and psychological understanding of the story and characters. Looking specifically at moral understanding, the 17-year-olds were able to take the separate morals for each character and combine them into an overall story moral, seeing them as one whole instead of two separates (Genereux & McKeough, 2007). In addition, they are able to see several layers of storytelling with multiple problems facing the characters, make “inferences about the characters’ dispositions…[and offer] psychological explanations for their [behavior],” something unseen by students in the younger age groups (Genereux & McKeough, 2007, p. 864). Despite the differences between ages, these results suggest that readers have understanding of the morals found in narratives in regards to the fictional events and characters that the reader faces. Overall, all ages have some sort of interpretive understanding of the texts they read.
A reader’s ability to understand a text may be linked to increased exposure to texts throughout the reader’s life. Mol and Bus (2011) studied several age groups, ranging from infancy to college students, to determine the relationships between print exposure and academic success. This relationship suggests that the more students read for pleasure, whether students read novels, magazines, or are read to as children, the more likely they will experience increased academic success. According to the results of this meta-analysis, in regards to college and university students, out of six separate variables, “the comprehension component…and the technical reading and spelling component are moderately to strongly related to print exposure…with the effect size for oral language skills the largest of all” (Mol & Bus, 2011, p. 295). Though these results were found to a higher degree within the sample of college students, they were replicated by students in first through twelfth grade. Overall, this shows that students who read more in their leisure time are more likely to be successful in reading comprehension.

**Emotional Reactions to Reading**

Reading appears to have a link to emotional reactions in readers. A meta-analysis of existing research investigating emotional responses to reading by Mar, Oatley, Djikic, and Mullin (2011) establishes fiction’s effect on readers’ emotions before, during and after reading. Through the research, Mar et al. developed a cycle of emotional changes, starting with the affect and emotional state the reader begins with as he or she chooses a fictional piece to read. The affect and emotions the reader is feeling at the moment of the decision could have an effect on the type of fiction he or she chooses. During the process of reading fiction, the reader experiences the emotions established by Oatley (1994) in his taxonomy. The final step in the process was the lasting effects of the emotional reactions. When emotions are evoked during the reading process, those emotions may affect how the reader interprets the text later on, as well as
EMOTIONAL REACTIONS TO SHORT STORY

how the reader reacts to experiences in his or her own life. Fiction has such deep emotional roots that the induced emotional state could lead to a difference in cognitive processing and new reactions to real situations in the reader’s life (Mar et al. 2011).

Mar et al. present this cycle of emotion during reading with an addition to Oatley’s (1994) taxonomy. Maintaining the idea that readers experience sympathy, relived emotional memories, and identification, Mar et al. provide two more types of emotions elicited during reading: empathy and remembered emotions. Empathy, similar to the feelings of sympathy and identification that are elicited through reading, is a feeling of emotion somewhat similar to those of the characters, unlike sympathy, and without the desire to become like the characters, unlike identification (Mar et al. 2011). The character’s internal processes are usually revealed and a reader is able to enter into the world through the character’s eyes. Because the reader understands the goals, intentions, plans, and actions of the character and sees into that character’s mind, the reader is able to feel emotions similar to those of the character while not necessarily needing to see him- or herself as that character. The reader is able to “identify these emotions as [his or her] own rather than that of the character’s” (Mar et al. 2011, p. 824).

Following empathy, Mar et al. establish the fifth type of emotion experienced during reading, remembered emotions. Remembered emotions are similar to relived emotional memories, especially since they have been experienced in the past and are being applied to the reading in the present. However, remembered emotions may not necessarily be personal emotions. According to Mar et al., remembered emotions could be emotions that have been observed in others by the reader or even told to the reader by another individual. These emotions are not relived, especially if the emotions were not experienced by the reader in the first place, but simply recognized and applied to the understanding of the narrative being read (Mar et al.
EMOTIONAL REACTIONS TO SHORT STORY

2011). With these additions to Oatley’s (1994) taxonomy, Mar et al. expand the foundation of research that identifies the emotions experienced while reading fiction and how those emotions lead to a greater understanding of the work.

Since it has been established that emotional reactions occur during reading, the type of reading that elicits these emotions needs to be identified. Cupchik, Oatley and Vorderer (1998) investigate the difference in emotional reaction to emotional and descriptive texts. Providing participants with two emotional excerpts from short stories written by James Joyce and two descriptive excerpts from other works, they recorded whether the readers experienced fresh emotions, which are spontaneous emotional reactions, or emotional memories, which are more anecdotal in nature. Using excerpts from works by James Joyce, participants were asked to either take on the role of spectators and feel sympathy for the protagonist or imagine themselves as the protagonist and identify with the character. After reading, participants were asked to identify whether they had experienced new, fresh emotions or an emotional memory and to rate the experience on “scales measuring Pleasure, Intensity, and Tension” (Cupchik et al. 1998, p. 363).

The results show that the emotional excerpts equally evoke fresh emotions and emotional memories, while descriptive excerpts are less likely to evoke emotional memories. Looking at all four excerpts, fresh emotions were evoked from readers more frequently than emotional memories. Interestingly, readers rated emotional memories as more tense, pleasant, and intense when they were experienced as compared to fresh emotions (Cupchik et al. 1998). Though the experience was different for emotional memories and fresh emotions, both were still experienced despite the kind of narrative being read. Overall, emotions are experienced not only due to emotional excerpts, but also due to descriptive, non-emotional excerpts.
Personality and Emotional Reactivity

Though it is clear that people have emotional reactions to fiction, the question of how these emotions differ, and why they differ, has also been researched. Emotional states and reactions are often linked to differences in personality. Specifically, emotional reactivity could be influenced by differences in extraversion.

Defining extraversion and introversion. Eysenck (1955) identifies extraversion-introversion as factors of excitatory and inhibitory potentials. Individuals with quick-generating and slow-dissipating reactive inhibitions are considered extraverted, while individuals experiencing slow-developing and quick-dissipating reactive inhibitions are considered introverts (Eysenck, 1955). Freyd (1924) encompasses and simplifies definitions of this trait created by psychologists before Eysenck’s time. An introvert tends to have “an exaggeration of the thought processes in relation to directly observable social behavior, with an accompanying tendency to withdraw from social contacts,” while an extravert tends to have a “diminution of the thought processes in relation to directly observable social behavior, with an accompanying tendency to make social contacts” (Freyd, 1924, p. 74-75). In essence, the introvert has heightened interior cognitions that pull the individual away from social behaviors, while extraverts have decreased cognitions that lead to the individual seeking social connections.

Extraversion as a determinant of emotions. The clear differences between extraversion and introversion could be the answer to the different experienced emotional reactions. Lucas and Baird (2004) demonstrate that extraversion may have a connection to emotional reactivity by testing the validity of the affect-reactivity and affect-level models. According to the affect-reactivity model, extraverts and introverts show similar levels of affect to neutral or negative stimuli, but as they face positive stimuli, extraverts exhibit positive affect levels that increase
more steeply than introverts. In contrast, the affect-level model suggests that extraverts will exhibit more positive affect levels as compared to introverts regardless of the stimuli (Lucas & Baird, 2004).

In order to determine the differences in strength of reaction between extraverts and introverts, participants in the first study were asked to read aloud and concentrate on statements to induce a negative or positive mood, known as the Velten mood induction technique. Following this, participants were given scenarios to read—either neutral if they had read neutral Velten statements or positive if they had read positive Velten statements—that demonstrated events that could possibly happen in their own lives. After this, participants completed a mood report in which they rated to what extent they were experiencing pleasantness and wakefulness, also known as arousal. The results of this study showed that there was no significant interaction between extraversion and the mood induction situation, meaning that the affect-reactivity model, suggesting that extraverts would experience more positive affect levels in the positive scenarios, was not supported (Lucas & Baird, 2004).

The second, third, and fourth studies again tested the affect-reactivity model but using films to induce a neutral or positive mood instead of the Velten statements. Following the viewing of either the neutral or positive film, participants completed the mood rating based on pleasantness and arousal. The results of these studies again found no significance between extraversion and the mood induction situations. Again, the affect-reactivity model was not supported (Lucas & Baird, 2004).

The fifth study again tested the affect-reactivity model, however this time varying levels of pleasantness were used within the film clips. Instead of providing only one clip that was neutral and one that was positive, there was a third film shown that was considered moderately
positive. After viewing each film, participants were asked to complete a mood report consisting of positive affect items—“excited and energetic”—and pleasant affect items—“pleasant and happy”—that they rated on a 7-point scale (Lucas & Baird, 2004, p. 478). Scores for these items were significantly higher in the positive condition as compared to the moderate and neutral conditions, and the correlation between extraversion and pleasantness was larger than from the previous studies. Despite this, there was still no support for the affect-reactivity model as the difference in the correlation of the neutral stimuli and the positive stimuli to extraversion was not significant (Lucas & Baird, 2004).

The sixth study in the series altered the mood induction techniques again by asking participants to read jokes and cartoons instead of viewing a film or reading potential life-scenarios. Participants were again asked to rate their moods using scales indicating pleasantness and arousal. The results of this study did not support the affect-reactivity model as the interactions between extraversion and mood induction were non-significant (Lucas & Baird, 2004).

The seventh study was a meta-analysis of existing research regarding the affect-reactivity model since all of their findings had contradicted all previous research findings. One of the more significant goals of the meta-analysis was to compare the correlation of extraversion to laboratory induced positive affects with the correlation of extraversion to average in-the-moment situations. Interestingly, when this comparison was done, the results showed support for the affect-reactivity model as the correlation between extraversion and pleasantness increased as the positivity of the situation increased. However, these correlations, among others, were not strong enough to fully support the model (Lucas & Baird, 2004).
Over the course of six separate studies and a meta-analysis of previous studies, Lucas and Baird found the affect-reactivity model was not supported. However, there was a consistent increase of pleasantness and arousal in extraverts as compared to introverts, which was also found in their meta-analysis of previous studies. These results support the affect-level model, which suggests that extraverts have a naturally higher baseline for positive moods and will then have higher positive affect levels as a result of pleasant stimuli as compared to introverts. In neutral and positive induced scenarios, extraverts tended to have a higher level of positive affect than introverts. In essence, extraverts tend to have a more positive affect across all conditions as compared to introverts (Lucas & Baird, 2004).

Ng and Diener (2009) expand on Lucas and Baird’s findings by investigating whether differences in extraversion, which lead to different emotional reactions, are primarily due to positive emotion regulation, also known as savoring, where an individual maintains a specific mood or emotion. Participants were given difficult 7-letter anagrams to induce an unpleasant mood or simpler 4-letter anagrams to induce a pleasant mood and then were asked to rate how they felt after performing the task (Ng & Diener, 2009).

Savoring and extraversion were found to have a positive relationship and, in turn, both were associated with higher positive emotions that were created from the pleasant-mood inducing scenario (Ng & Diener, 2009). The results of the pleasant-induction scenario showed that highly extraverted individuals “experienced stronger positive emotions than low E,” or introverted, individuals (Ng & Diener, 2009, p. 104). Overall, extraverts, individuals with high E-scores, were more likely to maintain a positive emotion and savor the reactions to positive events, showing that emotional responses and the amount of emotional regulation differ between individuals based on personality traits, such as extraversion (Ng & Diener, 2009). Thus,
extraverts tend to have more positive emotional reactions and maintain these reactions as compared to introverts, suggesting that they will experience more positive emotional reactions across all situations.

**Current Study**

As shown through the wide array of research on the topic, people have emotional reactions to pieces of fiction, which can be fresh and new emotions or even remembered and relived emotions. While not directly tied to reading, research has shown that trait differences, namely extraversion, in individuals are associated with different emotional reactions and affect changes in response to pleasant- or unpleasant-induced scenarios. The research provided shows that individuals with high extraversion scores are more likely to be happier and maintain the happiness across all scenarios as compared to those with low extraversion scores. This combined research suggests an answer to the question of whether extraversion predicts an individual’s emotional reaction to reading a fictional short story. It is expected, based on the significant results of the 17-year-olds in Genereux and McKeough (2007), that most of the participants should not have difficulty understanding the psychological and moral levels of the provided short story. In addition, Mol and Bus (2011) reveals that print exposure is significant in understanding these moral aspects of the story; thus, it is important to learn the frequency of reading and degree of enjoyment the participants experience when reading, as those who read more and enjoy reading may understand the narrative to a greater degree and have experienced deeper emotional reactions to fiction than those who read little to no books. Taking all of these studies into account in this current study, it is hypothesized that individuals with higher extraversion scores would be more likely to experience more pleasantness in reaction to reading the short story and maintain this higher degree of pleasantness throughout. Furthermore, it is hypothesized that introverts,
with a lower threshold for excitement and trait inhibition, will consistently experience more arousal from the reading as compared to extraverts.

Methods

Participants

The participants were undergraduate students at a small, liberal arts college in Illinois. Students voluntarily signed up for an initial classification study via a psychology department bulletin board with research session postings. Introductory psychology students sign up for a number of studies in order to receive participation credit towards their final grade for the class. Participants were recruited from the initial classification study for the reading task. In both instances, students received participation credit in their introductory psychology course upon completion of the tasks. There were a total of 18 participants, 4 males and 14 females, with an average age of 19.38 years. Pseudonyms have been chosen for participants’ privacy.

Procedure

The independent variable of this study is extraversion, based on the participants’ score from the Eysenck Personality Inventory (Eysenck & Eysenck, 1963). The dependent variable is affect change, or emotional reaction to the story, measured by change in their affect responses as participants read the story. The study consisted of two phases: the questionnaire classification and the reading task. The questionnaire classification phase was completed in large group sessions. If the participants indicated their desire to be contacted for a follow-up study and if their extraversion scores qualified them, they were invited back for the reading task phase using a recruitment script. Each participant completed the same reading task in individual sessions with the experimenter.
Questionnaire classification phase. Before beginning, participants were given an informed consent form to read and sign, followed by a form of permission to be contacted for the reading task phase. Participants completed the Eysenck Personality Inventory (EPI), a 57-question test which measures Extraversion and Neuroticism and incorporates a Lie scale as a manipulation check (Eysenck & Eysenck, 1963). Participants were orally given the instructions provided with the test before beginning. After completion of the survey, participants were debriefed.

Reading task phase. Participants were recruited for this phase depending on their extraversion scores. Those that indicated interest to take part in the additional study and received a score of 13 or less, considered introverts, or 19 or more, considered extraverts, were invited to complete this phase of the study. First, participants were given an informed consent form that they were asked to read and complete. Participants were also asked to complete a permission form to allow the experimenter to audio record the interview at the end of the task. All participants gave permission for audio recording. These pieces were collected before continuing with the phase.

Participants were then given a demographic survey (see Appendix A) asking for general information about themselves, specific information about the English classes they have taken while in college, and how they rate themselves as a reader on a 7-point Likert scale (1 = avoid it entirely; 7 = read as often as possible).

Once the demographic survey was completed, participants self-reported their affect level in the moment on the pre-reading Affect Grid (Russell, Weiss, and Mendelsohn, 1989). The Affect Grid (see Appendix B) measures judgments of affect level in the moment based on “two dimensions of affect: pleasure-displeasure and arousal-sleepiness” (Russell, et. al, 1989, p. 493).
Participants were given general directions on how to use the Affect Grid, adapted from the instructions supplied by Russell et al. (1989). Participants were asked to place a mark in the grid to indicate their affect level in that moment based on a 1 to 9 scale for the X-axis pleasant scale and a 1 to 9 scale for the Y-axis arousal scale (Russell, et. al, 1989). Participants were asked to complete 6 total Affect Grids during the task: one before, four during, and one after the reading.

After this first affect rating, participants were asked to begin reading. The short story that all participants read for the task was “Call If You Need Me” by Raymond Carver (2009), which was originally published in 2000 after his death in 1988. The story is 4,255 words long and details a husband and wife having extramarital affairs and their attempt to rekindle what their marriage has lost. This story was specifically chosen for its emotional plot as well as its simple writing style while still upholding a strong literary reputation. Critical pieces of Carver’s work suggest that his stories are “pared-down, stripped of ornamentation, [and] stark,” but yet have an intense effect on the reader (McCaffery & Gregory, 1985, p. 62). Though “Call If You Need Me” follows this ‘stripped down’ approach, it covers an intense, emotional topic and, therefore, would have an effect on the participants. The story was retyped into a single document to allow for specific placement of the affect measure within the piece.

During their reading of the story, participants were asked to stop and mark their affect level at that moment. At points where the scene naturally stopped or changed, the following specific directions were placed: “Please rate how you are feeling right now. Place one check mark on the Page (#) affect grid to indicate how you are feeling at this moment.” Participants would then refer to the Affect Grid packet where they would locate the specific grid that corresponded to the specific moment. This occurred on pages 3, 7, 10, and 13 of the retyped document. Prior to the Page 3 (“Wife Envy”) checkpoint, Susan, the girlfriend of the narrator
Dan, expresses her envy for Nancy, Dan’s wife. The Page 7 (“No Dog”) checkpoint follows a point in the story when Nancy and Dan, after arriving in Eureka, California at their rented house in order to work on their marriage, discuss getting a dog, though they never do. Prior to the Page 10 (“Leaving”) checkpoint, Nancy threatens to leave and join their son, Richard, in Washington, suggesting that she and Dan need quite a bit of luck to fix their marriage. The final in-text checkpoint at Page 13 (“Hopeful Night”) follows a hopeful night of reunion between Nancy and Dan, spurred by the spontaneous arrival of a herd of horses in the front yard of their rented house.

After the participants finished the story, which ends with Dan and Nancy mutually ending their relationship, they were asked to mark their affect level at the moment of finishing the story. This represents the “post-reading” affect level. Following the reading, participants were asked to complete a comprehension check (see Appendix C) comprised of four factual multiple-choice questions about the short story. The questions covered information regarding the setting, the characters, the plot, and the main conflict. The purpose of these questions was to simply check that the participants had read and understood the story. Once completed, all pieces of the task were collected by the experimenter.

Finally, participants took part in a short, eight question interview. The qualitative interview (see Appendix D) asked questions designed to give a complete understanding of the participants’ emotional responses. The questions inquired about specific emotional reactions, particular connections participants had to characters or events, opinions about the story and plot, and personal experiences regarding the central topic of the story. The interviews were audio recorded for transcription and coding. After the interview was completed, participants were debriefed.
Results

The hypotheses that (1) extraverts would react with more pleasantness in reaction to the story and that (2) introverts would respond with more arousal were tested using the above measures. In order to determine if the hypotheses were supported, independent and paired sampled t-tests of the Affect Grid responses and extraversion differences were completed to look for significant results. In addition, the responses during the interviews revealed trends that seem to be in-line with the statistical analyses, as well as revealing unexpected connections. Based on the results of the Extraversion scale on the EPI, of the 18 participants in this study, 7 scored 19 or more and were considered extraverts \( M = 19.29 \) and 11 scored 13 or less and were considered introverts \( M = 10.46 \).

Reader Rating

Participants were asked how they would rate themselves as a reader on a 7-point scale, ranging from “I avoid it [reading] at all costs” to “I read as often and as much as possible” (refer to the demographic questionnaire in Appendix A). This task provided insight into the differences in reading interest between introverts and extraverts. An independent samples t-test was conducted to compare the differences between the groups. There was no significant difference in scores between introverts \( M = 5.45, SD = 1.04 \) and extraverts \( M = 5.29, SD = .76 \), \( t(16) = .371, p = ns. \)

Analyzing Pleasantness

In order to identify differences in the change of pleasantness, it was necessary to determine the baseline of pleasantness, or the average pleasantness rating before participants began reading, for both introverts and extraverts. Introverts and extraverts started with similar baselines \( M = 5.82 \) and \( M = 5.57 \), respectively, as seen in Table 1.
Table 1
Average pleasantness scores at affect checkpoints

<table>
<thead>
<tr>
<th>Checkpoint</th>
<th>Introverts (N = 11)</th>
<th>Extraverts (N = 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Before</td>
<td>5.82</td>
<td>1.33</td>
</tr>
<tr>
<td>Wife Envy</td>
<td>4.00</td>
<td>1.00</td>
</tr>
<tr>
<td>No Dog</td>
<td>5.36</td>
<td>1.29</td>
</tr>
<tr>
<td>Leaving</td>
<td>3.18</td>
<td>.98</td>
</tr>
<tr>
<td>Hopeful Night</td>
<td>6.27</td>
<td>1.27</td>
</tr>
<tr>
<td>After</td>
<td>3.09</td>
<td>1.45</td>
</tr>
</tbody>
</table>

Note. Means in this table are based on the horizontal pleasantness scores indicated by participants in the Affect Grid at each checkpoint.

After determining this similar baseline, an independent samples t-test was conducted to compare pleasantness at all checkpoints for both extraverts and introverts. At the *Hopeful Night* checkpoint, which occurs after the couple, Nancy and Dan, end the night talking, laughing, and dancing with each other, there was a significant difference in the scores for introverts ($M = 6.27$, $SD = 1.27$) and extraverts ($M = 7.14$, $SD = .38$), $t (16) = -2.126, p \leq .05$. There were no significant differences at any of the other checkpoints for introverts and extraverts. The differences at this particular point may have occurred because of the optimistic nature of the plot prior to the checkpoint. The couple seems to be making up and fixing their marriage, unlike the other checkpoints, which portray the couple as perpetuating their marital dissatisfaction.

In addition to determining significance within the text, it was imperative to see if there was change in pleasantness from before to after reading. A paired samples t-test was conducted to compare pleasantness change at the *Before* and *After* checkpoints. There was a significant difference in the scores of pleasantness from beginning to end overall and within personality type.
groups. Though both groups experienced change from beginning to end of the story, introverts reported higher levels of pleasantness (Before $M = 5.82$; After $M = 3.09$) as compared to extraverts (Before $M = 5.57$; After $M = 2.43$), as seen in Table 2.

Table 2  
*Pleasantness change from before to after reading*

<table>
<thead>
<tr>
<th>Check Point</th>
<th>Before</th>
<th>After</th>
<th>$t$</th>
<th>$df$</th>
</tr>
</thead>
<tbody>
<tr>
<td>All participants</td>
<td>5.72</td>
<td>2.83</td>
<td>5.965*</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>(1.13)</td>
<td>(1.34)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introverts</td>
<td>5.82</td>
<td>3.09</td>
<td>3.816**</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>(1.33)</td>
<td>(1.45)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraverts</td>
<td>5.57</td>
<td>2.43</td>
<td>5.284**</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>(.79)</td>
<td>(1.13)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. * $= p \leq .001$, ** $= p \leq .05$. Standard Deviations appear in parentheses below means.

**Analyzing Arousal**

Just as when analyzing pleasantness, it was necessary to determine similar baselines of arousal. The average arousal scores at each checkpoint for both introverts and extraverts are found in Table 3 and reveal that both groups started at a similar baseline of arousal. An independent samples t-test of arousal and extraversion was then conducted to compare arousal at all checkpoints for extraverts and introverts and found no significant differences at any of the checkpoints.
Table 3
*Average arousal scores at affect checkpoints*

<table>
<thead>
<tr>
<th>Checkpoint</th>
<th>Introverts (N = 11)</th>
<th>Extraverts (N = 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Before</td>
<td>4.64</td>
<td>1.12</td>
</tr>
<tr>
<td>Wife Envy</td>
<td>4.64</td>
<td>1.20</td>
</tr>
<tr>
<td>No Dog</td>
<td>5.36</td>
<td>1.29</td>
</tr>
<tr>
<td>Leaving</td>
<td>4.09</td>
<td>1.51</td>
</tr>
<tr>
<td>Hopeful Night</td>
<td>6.45</td>
<td>.82</td>
</tr>
<tr>
<td>After</td>
<td>4.18</td>
<td>1.17</td>
</tr>
</tbody>
</table>

*Note.* Means in this table are based on the vertical arousal scores indicated by participants in the Affect Grid at each checkpoint.

In order to determine change in arousal from beginning to end, a paired sample t-test was conducted and found no significant difference in arousal at the *Before* and *After* checkpoints for any of the participants, as shown in Table 4. Though there was no significant change or differences in arousal at any of the checkpoints, extraverts overall reported higher scores of arousal.

Table 4
*Arousal change from before to after reading*

<table>
<thead>
<tr>
<th>Check Point</th>
<th>Before</th>
<th>After</th>
<th>t</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td>All participants</td>
<td>4.78</td>
<td>4.83</td>
<td>-.164</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>(1.00)</td>
<td>(1.54)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introverts</td>
<td>4.64</td>
<td>4.18</td>
<td>1.242</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>(1.12)</td>
<td>(1.17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraverts</td>
<td>5.00</td>
<td>5.86</td>
<td>-1.549</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>(.82)</td>
<td>(1.57)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* Results of paired samples t-test were not significant. Standard Deviations appear in parentheses below the means.
Introvert and Extravert Case Studies

In addition to the above quantitative data results, the individual interviews with the participants yielded notable results. A content analysis of the qualitative data was completed in order to explore associations between personal experience with divorce and emotional reaction to the story. Some results, such as the higher frequency of reported happiness in the interviews with introverts, are in-line with and support the results from the Affect Grid analyses. However, other responses within the interviews revealed new, unanticipated trends and associations between the personal experience of introverts and extraverts and the short story.

All participants had experienced divorce either within their own immediate family or through close friends with divorced parents. In this way, all participants were able to relate at least somewhat to the story. As stated earlier, introverts tended to mention being happy at some point in the story more frequently than extroverts, corresponding with the quantitative result that introverts experienced more pleasantness through the reading. As one introvert mentioned, “It made me happy [in the middle]…when everything was great”. However, most participants reported experiencing a “roller coaster of emotions” while reading. Some emotional reactions were mentioned along with particular events within the story. The most frequently mentioned event that both groups refer to almost equally was the final scene in which Dan, the narrator, calls his girlfriend outside of his marriage. Extraverts tended to refer to events involving Richard, Dan and Nancy’s son, more frequently, such as the good-bye between Dan and Richard before both left for the summer. On the other hand, introverts referred more often to events involving Nancy, Dan’s wife, such as when Nancy expresses her desire to leave prior to the Leaving checkpoint. Figure 1 provides a visual representation of the frequencies these events are mentioned by both introverts and extraverts.
Figure 1. Frequency of reference to particular scenes in the story by personality type. Events are ordered chronologically as they appear in the narrative. Frequencies are normalized based on the ratios of sample sizes between extraverts and introverts.

While this overarching analysis is important, looking more in-depth into the particular experiences of participants reveals more significant data behind the emotional reactions elicited from the reading. Of the 18 participants, five stood out as either representative examples of three types of emotional reactions (“Limited Emotions,” “Extreme Changes,” and “Emotional Optimist”) or unique cases (“Married Exception” and “Deep Connection”). These five case studies are presented in order to show trends not necessarily represented in the quantitative data. Participants have been given pseudonyms for anonymity purposes.

**Limited Emotions.** Four participants reacted with limited emotions that did not reach either extremes of pleasantness or arousal, but instead maintained emotions within the middle of the scales (scores 4-6 on either scale). These participants tended to have similarities in their experiences with divorce. All four participants experienced the divorce or separation of either
parents or close relatives—one even reported her parents had reunited after an initial separation, only to divorce a second time. Two of these participants said that these failed relationships were instigated by either one or both individuals having extramarital affairs. These experiences may have factored into their limited emotional responses.

One participant in particular stood out as representative of this group of emotionally numbed individuals. Charlotte, with an Extraversion-score (E-score) of 12, represents this small group of participants as a case example. Her arousal and pleasantness levels did not fall below 4 or rise above 6 at any given point in the story, which can be seen in Figure 2.

![Figure 2. Change of arousal and pleasantness scores of Affect Grid for Charlotte, an introvert with an E-score of 12.](image)

Charlotte has had experience with the separation of her parents, who are not divorced for financial reasons. She believes that this dynamic made her less emotional towards the story “because [she] grew up with parents who hated each other.” In fact, at several point in the interview, she stated that having extramarital relationships was “stupid.” When asked, she said that “they [the characters] should separate and go be with the people they obviously want to be with more.” Her resignation towards the couple’s relationship provides insight into her slight arousal and pleasantness changes across the checkpoints.
Instead of suggesting a way for couples to work through the occurrence of extramarital affairs, she believed that there is no way of working through it: “…there’s obviously something wrong that the person went to that point anyway…they should just come to terms with the fact that their marriage isn’t going to last and deal with it that way.” Ultimately, her emotional reaction—or lack thereof—seemed to be connected to her personal experience of parents who had difficulty in their own marriage, causing her to grow immune to the conflict. Having experienced failing relationships similar to that shown in the story, these participants responded with limited emotional changes.

**Extreme Changes.** Some participants experienced drastic changes in pleasantness and arousal from checkpoint to checkpoint. The five participants who had responded with these extreme differences in emotion, much like those in the Limited Emotions group, shared some similar experiences. All of these participants have seen the effects that divorce has had on their friends or experienced the effects themselves and responded in reaction to how the divorce between Nancy and Dan may end up affecting Richard. One participant, Jane, represents these extreme reactions, while also providing an interesting case example of the experience of her own parents’ tumultuous relationship.

Jane, with an E-score of 12, experienced drastic changes in pleasantness from checkpoint to checkpoint, as seen in Figure 4. While the difference in Before and After affect does not appear significant, her change in pleasantness from the checkpoints of Leaving to Hopeful Night to After is significant in its link to her experience with her parents’ divorce and relationship.
Like discussed earlier, the *Leaving* checkpoint corresponds with Nancy’s unwillingness to put in the effort to save the marriage. *Hopeful Night*, in turn, follows a shift in attitude of the couple. Nancy and Dan experience an important romantic event—a herd of horses grazing in the front yard of their rented house—which spurs them to momentarily reconcile, only to ultimately decide to end the marriage. Jane responds with extreme pleasantness (at *Hopeful Night*) and unpleasantness (at *After*) in reference to these events. She believed that the relationship between her own parents was a possible reason for these reactions. Identifying with Richard, she said “I know what it is like to listen to them [parents] argue. Everything is one parent’s fault and not the other’s.”

In particular, she identified with the events preceding *Hopeful Night*, which reminded her of a moment in her own life. As her parents are both remarried, they rarely get along when together, and, as she said, when they do get together, it is “like starting World War Three.” However, she recalled a time when both her parents and their significant others gathered to support her in a school event. Instead of fighting, all of them were “laughing and talking and just peaceful,” which she wished it was like more often. Her response to this point in the story was
likely not only in reaction to the event, but also to the recollection of this “happy moment aside from all the crap.”

Despite the examples set from her parents’ relationship, she maintained that a marriage is something to be worked at and fixed when problems arise, as demonstrated by her grandparents’ 40-year marriage. Disagreeing with the idea of extramarital relationships, she believed that even when in the process of a divorce, a couple should “be courteous and be faithful” until the process is complete. Ultimately, Jane believed that the story suggests that individuals should not allow the bad of a relationship outweigh the good that has occurred. Even if a relationship is over, she suggested that a couple continue to remember the good times with one another, a solution, perhaps, to the problems within her own family. From the tumultuous experiences she and these other participants had, their emotional reactions were to extreme differences across checkpoints.

**Emotional Optimist.** Another group of four participants responded with optimism to the story and characters. Their affective reactions were variable, but overall similar to the average of all participants. For this group of participants, it was important for the characters to “be happy,” even if it means leaving their significant other for a new relationship. These participants tended to share similar experiences of divorce in that, for the most part, the family has come to terms with divorce occurring in their families. Charles, an extravert with an E-score of 20, represents this group with arousal and pleasantness levels slightly above average, as seen in Figure 5.

He expressed his skepticism of the love between the characters, believing that they did not necessarily have any love left for each other to work on, even after the seemingly positive events occurring prior to the *Hopeful Night* checkpoint: “…just the way they were connecting, there wasn’t obviously anything there. Even one [great] night…isn’t going to change that.” Despite this skepticism, Charles did respond with increased pleasantness at this checkpoint,
much like the other participants. As for his connection with divorce, Charles shared the effects of the divorce that had occurred between his grandparents. He believed that his family has had a more positive experience with divorce compared with others who have experienced divorce of family members. In fact, his “grandmother and grandfather…and the families get along still.” They have maintained a friendship between the families and each other, allowing Charles to develop an opinion about divorce that is free of the negative connotation held by many. With this experience, he reads the scenario of Dan and Nancy with optimism for what may happen after the marriage ends.

![Figure 5. Change of arousal and pleasantness scores of Affect Grid for Charles, an extravert with an E-score of 20.](image)

Although there is peacefulness in the relationship between his divorced grandparents and their families, Charles suggested that conflict was necessary to work things out. This suggestion was in contrast to other participants within this group. He believed that “conflict either comes with solutions that you like or don’t like. Whether it’s going to counseling through a third party, or if you think you can go through it on your own, you need that conflict…You can’t just throw smiles and roses at something to make it better.” Perhaps, then, his decrease in pleasantness after reading would have increased had the characters created more conflict between one another. The
question of the source of this conflict—necessary suggestion is unanswered, as he seems to not have experienced this in his family. However, he had a strong belief to support and maintain it. While Charles represents the Emotional Optimist group significantly, his belief in conflict to provide a solution is unique to the suggestions of the other participants in this group who do not necessarily think more conflict is the solution.

**Married Exception.** Within the Limited Emotion participants was one participant, Emily, whose personal situation set her apart from all other participants. Emily was the only married participant. The other participants either had a boyfriend/girlfriend for unspecified lengths of time or were single. For this reason, Emily was pulled out as a case study exception.

For Emily, with an E-score of 8, arousal and pleasantness, as seen in Figure 3, continue at the same level until the *Leaving* checkpoint, at which point arousal increases and pleasantness decreases. Just before the *Leaving* checkpoint, Nancy, the wife, decides she wants to leave and give up on the marriage. At this, Emily reported a decrease in pleasantness, a reaction perhaps informed by her own experiences as a part of a married, committed couple, who “work out their marriage” when conflicts occur.

![Figure 3. Change of arousal and pleasantness scores of Affect Grid for Emily, an introvert with an E-score of 8.](image-url)
At 22, Emily has not been married for a significant length of time. However, being in such a committed relationship, she holds a connection with the story that was unlike those of the other participants. She was able to connect with the characters having a place to escape from their daily life. Emily and her husband have a home in Virginia shared with her family that they are able to visit as a “special place to get away from everything.” Seeing the success not only with her own marriage but those of other family members, Emily stated that the story and characters made her angry and aggravated. Reacting to the story by linking it to the divorce of her aunt and uncle, a result of extramarital affairs on both sides, Emily said “That’s just aggravating to me. If you’re seeing other people, I think you should just be divorced.”

Though she had experienced a similar scenario in her family, she referenced her own marriage more frequently. Several times she stated that if her husband would ever engage in an extramarital affair, she would divorce him: “…that would be the end of that. We wouldn’t try to work things out…if you’re going to cheat [once], it’ll probably happen again.” This intense reaction to putting herself in the story was also identified in her opinion of extramarital relationships. Not only did she not agree with affairs, but she also believed that a marriage could not return to its previous state after affairs had occurred. Despite her identifying the moral within the story as to put forth the effort to work on a marriage and the maintenance of her own marriage during tough times, she still stated that a marriage could not survive one or both of the individuals seeing other people. This negative reaction to the story was more intense than others who had reacted negatively, suggesting that her being in a committed marriage set her apart from the other participants.

**Deep Connection.** While many participants created connections with the characters, one participant stood out from the others by having many similarities with Richard, the son of Nancy
and Dan, and creating a deep connection with this character. William, an extraverted participant with an E-score of 19, seemed to react with a similar pattern of pleasantness to the average reactions exemplified by the Emotional Optimists. However, he differed in his change in arousal, having maintained the same arousal levels over multiple checkpoints, as seen in Figure 6.

The distinctive maintenance of arousal across multiple checkpoints is likely due to an increased interest in the situation of the characters, an interest linked to his personal experiences with his own family. William’s parents are divorced as a result of extramarital affairs. He stated that this event had a prominent place in his life and could, thus, relate to Richard’s character. While his parents were going through the divorce, he was consistently worried and stressed, especially as “the oldest of four [and having] to take care of [his] younger siblings” through the duration of the divorce. Having experienced it for himself, he could foretell the ending of the story. He recognized the approaching resignation of the characters as similar to the times his own parents would end fights, intoning that they “can’t do this anymore.” Within Richard’s character, William identified the familiar “feeling [of] unworthiness, uncertainty” he felt towards his parents during the time of their divorce.
Though the experience of his parents’ divorce seemed to be negative, he came out of it with knowledge to ready him for disagreements within his own relationships, which he identified as being expressed as a lesson of the story. Specifically, William believed that the story revealed that “people resort to what they want, and they don’t really care about other people.” Believing that divorce and extramarital affairs tend to come down to individuals being selfish, William suggests that couples should “hash out” conflicts, and “if it hurts the other person’s feelings…then you can solve it.” Within his relationship with his girlfriend, he has seen these tactics work. When William and his girlfriend are fighting, they “talk about it,” making sure that the “the opinion and how [both] feel is heard” in order for both to understand each other’s feelings about the problem. For him, conflict is necessary to bring solutions to a problematic relationship. Unlike the problems between his parents, however, he suggested that conflict has to bring about solutions to be considered productive. The deep connections he made to the text and Richard were heavily linked to his experience with his parent’s divorce and how he felt during that time, creating a case study exceptional from the others.

**Discussion**

The present study attempted to determine if extraversion differences could account for differing emotional reactions to reading a short story. Two hypotheses were put forth and tested. The first that extraverts would experience more pleasantness during the duration of the story was not supported. Extraverts tended to report less pleasantness across most checkpoints, except for *No Dog* and *Hopeful Night* when they reported higher pleasantness as compared to introverts. There were no significant differences in pleasantness except for at the *Hopeful Night* checkpoint, likely associated with the sudden plot change which predicted a happier ending. In addition, both groups significantly decreased in pleasantness from before to after, suggesting that the story did
in fact cause some change in emotion for the participants. The second hypothesis that introverts, having a lower threshold for excitement, would experience more arousal from reading was not supported. Introverts reported less arousal for most of the checkpoints, except for the *No Dog* and *Hopeful Night* checkpoint when they reported more arousal as compared to extraverts. There were no significant differences found in arousal for any of the checkpoints or from before to after reading.

There appears to be an interesting relationship with *No Dog* and *Hopeful Night* in regards to pleasantness and arousal. The *No Dog* checkpoint occurs after Nancy and Dan discuss getting a dog while on their retreat to fix their marriage. The scene ends prior to the checkpoint with: “But though we went on talking about dogs for several days, and pointed out dogs to each other in people’s yards we’d drive past, dogs we said we’d like to have, nothing came of it, we didn’t get a dog” (Carver, 2009, p. 711). Extraverts’ pleasantness response was only slightly higher than introverts, and the introverts’ arousal response was slightly higher than those of the extraverts. Reasons for these differences are not clear, as neither group mentioned anything about the conversation of dogs in their interviews, making it difficult to compare whether one group noticed it more than the other. *Hopeful Night*, however, saw larger differences between the pleasantness and arousal of extraverts and introverts, which was shown in the statistical significance of that checkpoint. Almost all participants mentioned the arrival of the horses and the hopeful night the characters spent together, however it is uncertain how the two groups differed in opinion on this event. When compared to existing literature, the overall results showed little support for the studies from which the hypotheses for the present study are derived.
Extraversion as a Factor of Emotional Reaction

Extraversion and emotional reaction are commonly linked in the literature, such as that of Lucas and Baird (2004) which sought to identify the appropriate model for extraversion linked emotional reactivity. The researchers found support for the affect-level model of emotion, which states that extraverts tend to have a naturally higher baseline for positive moods and, thus, have higher positive emotion across all situations as compared to introverts. They found that extraverts reacted with a consistent increase of pleasantness and wakefulness as compared to introverts (Lucas & Baird, 2004). The results of the present study did not support the findings of Lucas and Baird. Pleasantness changed very similarly between extraverts and introverts. Both groups experienced “up and down” changes in pleasantness and arousal rather than a consistent increase. Ultimately, introverts tended to show higher levels of pleasantness, directly challenging the affect-level model.

Ng and Diener (2009) added to the study by Lucas and Baird (2004) by investigating the pleasantness savoring tactics of extraverts. They found that extraverts, in addition to having more positive reactions, would savor or maintain those positive reactions during the scenario and continually after the scenario was complete (Ng & Diener, 2009). The current study did not find this to be true with the use of a short story. Instead of savoring, extraverts varied between checkpoints, some experiencing very low pleasantness. If they had experienced savoring, there would have been more consistent scores of pleasantness across all checkpoints.

Though these results seem to discount those of Lucas and Baird (2004) and Ng and Diener (2009), there are fundamental differences between methods that could account for the contrasts in results. Both studies focused on mood induction and the relationship with extraversion. For example, Lucas and Baird asked participants to read particular statements out
loud, and Ng and Diener used anagrams with varying difficulty to induce positive or negative emotional states. These studies lack the personal emotional connection that the present study aims to create. The materials found in these studies do not have deep emotional roots as the purpose is to elicit an immediate reaction, such as Lucas and Baird’s cartoons to induce a pleasant state. The story found in the present study, on the other hand, is working to create multiple different emotional reactions while also creating associations with the experiences of the reader. This difference in personal connection may account for the opposing results found in this study as compared to previous studies. However, this interaction begs the question as to why such a difference exists. One reason for this is likely linked with the nature of literature and the way it elicits emotions from a reader.

**Personal Experiences as a Factor of Emotional Reaction**

Oatley’s (1994) taxonomy recognized a number of types of emotions that are elicited when a reader is within the narrative world. He suggests that the reader feels sympathy, or a mental link to the character as a way of expressing emotional understanding (Oatley, 1994). A number of the participants felt sympathy for Richard, the son of Nancy and Dan, as many had experienced the divorce or separation of their own parents. This sympathy was generally expressed through the participants discussing how they “feel bad for Richard.”

One participant in particular, William, had an intense sympathetic connection with the character in which he expressed feeling the emotions Richard had felt about his parents. Oatley (1994) identifies this connection as identification with the character. Readers will experience such a psychological connection that they may take on characteristics of the character. While William did have similar experiences to Richard’s and likely experienced the emotions he mentioned in the interview, the descriptions of his experiences were continually linked with
Richard’s character. Though William has had his own experiences with divorce, they were intensified after reading and connecting with Richard and the divorce of Nancy and Dan.

Finally, Oatley (1994) suggests that relived emotional memories are experienced by readers as they read about events similar to those emotional memories. Almost all participants identified some sort of emotional memory associated with experiencing divorce or separation within their families. Each of these memories tended to be linked to a particular emotion, both negative and positive, suggesting that the emotional events within the story had in some way stirred up these memories within the participants. In addition, the relived memories were associated with the particular perspectives participants had prior to the study. For example, Emily, as the only married participant, had a strong negative reaction to the extramarital affairs whereas other participants were slightly more accepting of the affairs. This difference was likely influenced by her experience of the fragility that comes with being in a committed, long-term relationship.

Mar, Oatley, Djikic, and Mullin (2011) continued Oatley’s (1994) taxonomy with the creation of two additional emotions elicited from the reader as a result of reading: empathy and remembered emotional memories. Empathy, much like sympathy, is the feeling of emotion similar to that of the characters, but without the close identification with the character. The reader understands the goals, intentions, and actions of the character, without needing to accept those as their own goals, intentions, and actions (Mar, et al., 2011). Many participants experienced empathy in regards to Nancy and Susan, the narrator’s wife and girlfriend. When empathy occurred, participants felt bad for these characters, without necessarily having experienced the situations for themselves. For example, a number of participants expressed their disagreement with Dan seeing another woman, Susan, as well as Nancy’s unwillingness to put
forth effort to fix the marriage. In spite of this, those same participants said that they felt sorry for Susan, who was jealous of Nancy, and could understand why Nancy would want to give up. They may not have experienced these events for themselves, but they are able to understand the position each of these characters were in and emotionally react to them. For those who have experienced similar relationship dynamics to those in the text, their reactions may look similar to those experiencing empathy, however they are able to draw on their remembered emotions from those past experiences, unlike the empathetic readers.

Remembered emotional memories, similar to relived emotional memories, tend to be the recollection of a past event that had elicited similar emotional reactions to the ones the reader is experiencing in the moment. These memories do not necessarily have to be ones that the reader has experienced for him- or herself, but could also be observed or told to the reader from another’s perspective (Mar, et al., 2011). Emotional memories such as these occurred continually by participants as they remembered the divorce experiences of family and friends that they had only later been told about. For many, these still caused emotional reactions, especially when the stories of the divorce involved the participants’ own parents or family members. Participants understood the emotions connected to the divorce in the story, which elicited the emotional memories that they had been told about in the past. Participants still experienced the emotions in the moment, though they had not taken part in the events in the first place.

While Oatley (1994) and Mar, et al. (2011) have developed a working taxonomy of emotion, Cupchik, Oatley, and Vorderer (1998) investigated the eliciting difference of fresh emotions and emotional memories from emotional and descriptive excerpts. Emotional excerpts tended to equally evoke fresh emotions and emotional memories, while descriptive excerpts were
less likely to evoke emotional memories than fresh emotions. Furthermore, fresh emotions were more frequently evoked overall (Cupchik, et al., 1998). In the present study, participants discussed both fresh emotions and emotional memories within the interviews. As this was primarily an emotional work, it is not surprising that this occurred. Participants experienced emotional reactions to the story that were directly related to the plot, while also having emotional memories evoked as a result of reading about the events that take place.

**Factoring in Textual and Moral Understanding**

The results of the current study clearly support the elicitation of emotions from reading an emotional narrative. However, the participants’ abilities to interpret the narrative may also factor into the emotional and moral reactions. Genereux and McKeough (2007) found that 17-year-olds had advanced moral and psychological understanding of narratives and characters with the ability to identify morals of a story. In the present study, this was certainly the case for the undergraduate participants. Almost all participants made some allusion to the moral lesson they found within the story.

On the other hand, Mol and Bus (2011) suggest that this ability could be based on the degree of print exposure individuals experience throughout their lives, coming to the conclusion that the more students read for pleasure the more academic success they have. Asking participants to rate their reading habits allowed to check for this variable, and no significant difference was found between the ratings of introverts and extraverts, suggesting that reading enjoyment and frequency did not factor into the significant differences found. All participants rated themselves between 4 (“I will read if I need to”) and 7 (“I read as often and as much as possible”), which suggests that significant differences in reading comprehension should not occur. All of the participants read enough to have an advanced interpretation of the text.
One limitation to this check is the self-reporting nature of the scale. It is possible that participants may not have been honest in the self-reporting in order to make themselves look better in the eyes of the experimenter. As another tool for comprehension, participants completed the multiple-choice comprehension check (see Appendix C). Participants performed similarly on this check, with 13 getting all four questions correct and the remaining five answering only the question about the setting incorrectly. These results provide enough evidence to determine that the participants did understand the story and were able to make the necessary moral connections with the text.

**Limitations and Further Research**

The major limitation of the study rests in the sample of participants. With a small sample size of only 18 participants, it is difficult to draw any strong conclusions from the data in relation to the hypotheses. Furthermore, as the samples of extraverts and introverts are uneven ($N = 7$ and $N = 11$, respectively), the results may not be representative of personality differences. This disparity may have been due to the trends in participant sign-up. Data collection was completed over the course of one ten-week term. Participants signed up on a volunteer basis for the initial screening phase of the study. During this term, many introverts were signing up towards the beginning, while most extraverts were towards the end of term. This trend had significant implications on the invitation for participation in the second phase. Towards the end of the term, most who took part in the screening phase did not need more research credits towards their credit goal for their introductory psychology course, and thus did not take part in the second phase. Since extraverts were primarily completing studies in the latter part of the term, many potential participants were lost.
In addition, because of the lack of extroverts responding to participate in the second phase, the invitation method was altered. The email, which was initially written with a brief description of the study, no longer made any mention of the task participants would be completing. While this did increase the number of extraverts responding, it also led to differences in interest of reading between participants, as those in the first half of the term knew they would be reading a short story and may have chosen to participate because of their enjoyment of reading. The lowest scores reported, which was 4 on a 7-point scale or “I will read if I need to,” occurred at the latter half of the term, after the email had changed. In turn, this change in pre-briefing may have affected the willingness to connect with the story if they did not enjoy the task.

Finally, the gender distribution between groups was significantly uneven. With only four males, and all being extraverts, it is impossible to know if there are differences between genders of different personality types. Introverted males may react in a completely different way from introverted females and even extraverted males. Because this population was missing, the results are lacking in that area. If this study were to be replicated, it would be necessary to not only obtain a larger sample, but a more diverse sample to have a complete picture for the data.

Though the limitations suggest several methodological issues that could be fixed for the replication of this study, other alterations could be made should further research be considered. First, the quantitative results of affect may be interpreted differently if the researcher captures participant thoughts at the checkpoints. Adding a free response question at each checkpoint could allow for this. At these points, participants may be asked to explain their emotional reactions or if any particular memories come to mind based on the events in the story prior to that point. Second, multiple stories with different subjects could be used to gain a better understanding of
how emotions may differ depending on the nature of a narrative. It would also allow for controlling confounding variables that were not controlled for in the present study, such as individual participant interest in the story or unequal reading ability in regards to the writing language. Third, utilizing a different tool to measure affect may lead to different results. Arousal is difficult to measure, and the study may benefit from a more direct, biological measurement. Another consideration is to measure pleasantness and arousal separately to get a more accurate reading of both.

**Conclusion**

While this study did not necessarily find significant results to support the presented hypotheses derived from the literature, it has opened the topic of personality-linked emotional reactivity to less direct methods of eliciting emotional states. Extraverts and introverts did not react in the expected way to reading the short story, but did react with emotions informed by previous experiences. The experience-informed reaction could be linked to personality in that individual connection to a text is dependent on factors of extraversion differences, such as arousal threshold. After this connection is made through personality, the individual then reacts with emotions based on their past experiences, which would allow them to connect with the narrative.

Due to the unexpected nature of the results, many questions have arisen from the research. Most notably, why did extraverts and introverts react in reverse of results from previous research? Similar to this are the potential differences between introverts and extraverts as they complete particular mood-inducing activities. Is there a difference in how individuals emotionally react to items with deep personal connections, such as Carver’s (2009) emotional story, and mood-inducing items, such as reading a scenario out loud? In addition, do
fundamental differences in personality, such as extraversion, dictate different reactions to such activities? Or, on the other side of this question, are personality factors mediated by life experiences? Although the results of this study did not find many significant differences, there are notable trends between the two groups in emotional reaction to the short story. As there is little research in the field of extraversion regarding activities such as reading a short story with the intent of monitoring emotional reactions, more research is necessary to understand the trends found in this study, as there may be more significant results found in studies with larger samples.
References


Appendix A

Demographic Questionnaire

For classification purposes, please answer the following demographic questions.

Please circle…

   Gender:   MALE   FEMALE

   Year in school:   FRESHMAN  SOPHOMORE
                     JUNIOR   SENIOR

How old are you?: _______

Please indicate which of the following core English classes you have taken in college.

   _____ ENG 115 (or the equivalent at another school)
   _____ ENG 125 (or the equivalent at another school)
   _____ ENG 315 (or the equivalent at another school)

Please list any other English classes not required as Core Classes that you have taken while in college, if applicable.

   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

How do you rate yourself as a reader?

   1  2  3  4   5  6   7

   I avoid it at all costs
   I will read if I need to
   I read as often and as much as possible
### Appendix B

Affect Grid

<table>
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<tr>
<th>Stress</th>
<th>High Arousal</th>
<th>Excitement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unpleasant Feelings</strong></td>
<td><img src="image" alt="Affect Grid" /></td>
<td><strong>Pleasant Feelings</strong></td>
</tr>
<tr>
<td>Depression</td>
<td><img src="image" alt="Affect Grid" /></td>
<td>Relaxation</td>
</tr>
</tbody>
</table>
Appendix C

Comprehension Check

Please circle the correct answer:

1. In what state does this story take place?
   a) California  c) Washington
   b) Florida    d) Georgia

2. What conflict are the main characters facing?
   a) Death of a family member  c) Discontent in marriage
   b) Job loss                    d) Substance abuse of child

3. What shows up one night in the front yard?
   a) A herd of deer  c) A neighbor’s dog
   b) A flock of birds d) A neighbor’s horses

4. What is the name of the narrator’s wife?
   a) Sally  c) Nicole
   b) Susan  d) Nancy
Appendix D

Interview Script

1. Have you read this story before?

2. What was your specific reaction to the story? What do you think made you react this way?

3. Were you surprised by the ending? Why?

4. Do you know someone close to you, such as your parents, extended family members, or close family friends, that are divorced or separated from their significant other?

5. What is your opinion on the extramarital relationships the characters were having? Do you think that is acceptable if both individuals agree to it?

6. Were there any characters you felt a particular connection to? Why do you think that connection happened?

7. Were there any particular moments in the story that you connected with? Why do you think that connection happened?

8. Did you enjoy the story? What was your overall opinion of the story?

9. Is there anything you think you can take from the story and apply to your own life?