EMPATHY, READING, AND GENDER RELATIONSHIPS

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For this study, empathy was defined as not only understanding and sharing another’s mental state, but also responding from a perspective more closely resembling the observed rather than the observer. Based on evidence suggesting relationships between reading and empathy, between empathy and gender, and between reading and gender, the current study investigated the relationship between empathy and reading and how this relationship varies as a function of psychological gender. Canonical correlation analysis confirmed the relationship of reading behaviors and appreciation of reading to aspects of empathy. It also demonstrated the utility of investigating gender differences based not on physical, but psychological gender, and confirmed a positive relationship between femininity and empathy. Key among the findings was the discovery of a positive relationship of psychological masculinity to cognitive empathy, amount of non-fiction reading, and appreciation of reading. The greater predictive power in psychological gender, which is more malleable than physical gender, counters sex stereotypes regarding empathy and reading behaviors; if men can be more like women in personality, they may also be more empathetic. The relationships established in this study have implications for the development of empathy and programs to facilitate it.
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Chapter 1 - Introduction

Empathy is a quality of character that can help you change the world; one that makes you understand that your obligations to others extend beyond people who look like you and act like you and live in your neighborhood… (Obama, 2006a).

When you choose to broaden your ambit of concern and empathize with the plight of others, whether they are close friends or distant strangers, it becomes harder not to act; harder not to help (Obama, 2006b).

Prior to his inauguration, then Senator Barack Obama gave a number of speeches in which he stressed the importance of empathy; of being able to see through the eyes of another, someone different than ourselves (Obama, 2006b). Obama is not alone in stressing the importance of empathy; research into the construct is thriving across many disciplines (Bloom, 2013; Keen, 2013). In cognitive neuroscience, empathy research is a primary force behind what some have called an “affective revolution” or an increased focus on emotions, particularly those relative to moral reasoning (Bloom, 2013). Business leaders tout empathy as affecting greatness in their employees, driving them to do better, to go for “something bigger than a paycheck” (Gillett, 2017). In medical settings, perceptions of doctor empathy have been noted as a key factor in positively affecting patient enablement (Mercer, Reilly, & Watt, 2002), or the ability of a patient to understand and cope with his health issues (Hudon, Fortin, Rossignol, Bernier, & Poitras, 2011). In educational research, the emotional reader was once characterized as deficient in rational thought (Keen, 2013); traditionally, emotion has been considered the antithesis of rational thought (Ashforth & Humphrey, 1995; Mumby & Putnam, 1992), leading to irrational thinking and behavior (Slovic, Finucane, Peters, & MacGregor, 2004). However, emotion
(particularly empathy) is now seen as positively affecting rational thought (Keen, 2013; Slovic et al., 2004). Some have gone so far as to say that true, rational, decision making requires an emotional component (Slovic et al., 2004). As Keen and colleagues conclude, to feel what one reads and thinks is often a good thing.

Many of those who understand the importance of empathy also stress the importance of literacy (Obama, 2005; Stanovich, 1986), going so far as to call it “the most basic currency of the knowledge economy we’re living in today” (Obama, 2005). Some have even suggested a connection between literacy and empathy, noting that books have the power to “take you out of yourself and to put you somewhere else…” (Obama, 2007). Such a position suggests books as a possible vehicle not only to improving literacy, but also to increasing an individual’s ability to understand and share the feelings of others. It indicates reading as a means not only of improving literacy and academic achievement, but also of increasing compassion for those who are dissimilar to us. Reading ability is positively associated with skill in critical thinking and the ability to infer meaning. Higher levels of these abilities not only facilitate academic achievement (Ku & Ho, 2010; Phan, 2009), they have also been tied to better social skills (Fleming, Dolan, & Frith, 2012; Frith, 2012; Paul, 1990; Zimmerman, 1995). Together, higher levels of academic achievement and social skills improve one’s chances of financial and employment success, as well as success in everyday interactions with others (Bird & Markle, 2012; Hogan, Chamorro-Premuzic, & Kaiser, 2013; Hunt, 2012; Kern & Friedman, 2009). Clearly, strong abilities in both empathy and literacy are desirable.

In both empathy and literacy, females typically perform better than males. The role of gender in development of disorders associated with deficits in empathy increasingly attracts the attention of investigators interested in fostering the well-being of affected individuals (Crick &
Zahn-Waxler, 2003). However, in practically every study assessing gender, differences based on physical gender (i.e. sex) are assessed rather than what the scientific community refers to as gender. A person’s sex is determined by biology; specifically, whether they possess male or female genitalia. Rather than a biological trait, gender is a cultural construct, defined by society in terms of personality characteristics typically associated with one sex or the other. When analyzing differences between sexes, most studies separate groups by physical—rather than psychological—gender.

The ability to read is a skill adaptive to survival, particularly in industrialized nations (Fitneva & Matsui, 2015; Tomasello, 2010). At the same time, the ability to understand the feelings, beliefs, and motives of another is instrumental to social life; as such, deficits in empathy lead to several problems. Societies around the world stress the importance of education and academic achievement, but even those not expressing an interest in academic achievement still express a desire for members of their communities to be able to interact in a positive manner. Treatments designed to increase empathy have shown positive effects in disorders including autism (Baron-Cohen, 2002; McVey et al., 2016), attention deficit disorders (Conway, 2014; Wilkes, Cordier, Bundy, Docking, & Munro, 2011), disorders with psychopathic traits (Dadds et al., 2009), even schizophrenia (Zhang et al., 2016), but what of cases where medication is not warranted? What of the bullying epidemic in schools? This is where reading-based interventions may play a role. More and more, evidence supports a role for educators, not only in promoting the academic achievement of our students, but also in affecting positive social behaviors (Selman & Russell Sage, 2003). Early prosocial behaviors positively impact, not only later academic achievement (Caprara, Barbaranelli, Pastorelli, Bandura, & Zimbardo, 2000), but also social connectedness in adolescence and well-being even into adulthood (Olsson, McGee, Nada-Raja,
& Williams, 2013). At the same time, antisocial behavior and lack of academic engagement are predictive of later substance abuse (Hicks et al., 2014).

The current study investigated the relationship among factors of time spent reading for enjoyment, appreciation of reading, and aspects of empathy. It also investigated how these relationships differ based on consideration of both physical and psychological gender. Relationships between reading and empathy, gender and empathy, and reading and gender have been explored, but only with respect to physical gender, not psychological gender. Therefore, based on research demonstrating effects of gender beyond those strictly associated with physical, biological gender, the current study asks the following questions: (a) What is the relationship between reading behaviors and empathy factors? (b) what is the relationship between appreciation of reading and empathy factors? (c) what is the relationship between gender and empathy? and (d) How are the reading and empathy relationships different by physical and psychological gender? Finding a positive relationship between empathy and engagement in and appreciation of reading has several social implications. Finding that psychological gender is more predictive of relationships to reading and empathy can inform interventions aimed at these constructs, making them more effective. Further, finding a greater effect of psychological gender in this study would support the use of psychological gender in place of physical gender for future studies across a variety of subjects and disciplines.
Chapter 2 - Literature Review

The literature review is divided into three sections: Empathy, reading, and gender. In the empathy section, a basic definition of empathy is presented, followed by discussion of various perspectives of empathy. This includes unitary conceptions from both cognitive and affective points of view, as well as multidimensional conceptions, wherein both affective and cognitive components are aspects of an overarching empathy construct. Empathy is then defined as it is investigated in this study, followed by discussion of how empathy develops across ontogeny. This review includes cultural, environmental, and biological factors, as well as both normal development and development in the presence of a disorder. The reading section follows, including reading theory and support for the importance of reading. The differences between physical and psychological gender are then considered, including the associated theories regarding both conceptualization and development of gender. Finally, following description of the three constructs (empathy, gender, and reading) individually, the literature review closes with discussion of the various interactions of each construct with each other construct singly, followed by discussion of the interaction among all three.

Empathy

Theory. Although the word “empathy” has only been around for about a century, the concept has been around for much longer (Bloom, 2013). As old as it is, however, empathy has no single agreed upon definition; far from it, research into the concept yields over 43 discrete definitions (Cuff, Brown, Taylor, & Howat, 2016). A common issue in defining empathy is whether it is primarily a cognitive construct (stressing the importance of understanding another’s mental state), an affective construct (stressing the importance of sharing the other’s mental/ emotional state), or both. Neither conception of empathy by itself seems sufficient. In the absence of a
shared emotional state, some may use the understanding of another’s mental state (i.e. cognitive empathy) against them rather than in the other’s interest (Kohut, 2010). At the same time, one needs to maintain a distinction between one’s own emotions and those of the other (Cuff et al., 2016), thereby supporting the insufficiency of a strictly affective conceptualization. Therefore, any description of empathy must address cognitive and affective components and ultimately be comprised of both.

Another area of disagreement in attempts to understand empathy concerns the process by which humans understand and share each other’s mental states. Though there is much literature regarding the nature of empathy, a large part of this discussion focuses on phenomenological approaches (Gallagher, 2008), theory-theory (TT), and simulation theory (ST; Gallese & Goldman, 1998; Jensen & Moran, 2012). Phenomenological approaches propose that direct perception is sufficient to ascertain the mental state of another. Observers of another’s mental state do not need to subject their perceptions to further cognitive processing to understand how the other feels. In contrast, both TT and ST suggest the necessity of further cognition (Gallagher, 2008) but through different mechanisms. TT is based on the idea that people use a common-sense theory of mind to attribute a mental state to another (Gallese & Goldman, 1998) as a means of understanding the beliefs, desires and intentions behind the other’s behaviors (Gallagher, 2008). Theory-theorists suggest that people develop a theory, make judgments regarding others’ psychological states, and then use these judgments to predict or explain their behaviors (Heal, 1998). ST on the other hand posits that individuals use information about themselves to actively construct a model of how others’ minds work (Lombardo, Barnes, Wheelwright, & Baron-Cohen, 2007). ST suggests people simulate the other’s state of mind, using their own experiences as a model to understand or predict others’ behaviors (Gallagher, 2008; Gallese & Goldman,
From the ST perspective, individuals can use the perceived similarity between themselves and the other to gauge the degree to which their own perception should be applied to the situation of the other; the accuracy of the subsequent model depends on the ability to accurately represent the similarities and differences between the self and the other.

Proponents of a phenomenological approach suggest that TT and ST are deficient in that they include the unnecessary use of some form of cognitive tool (Gallagher, 2008). Some have proposed that inference regarding the meaning of a perceived behavior is unnecessary, as the perception itself is richly informed, already having an attached belief, desire, intention, or motivation (Gallagher). From this perspective, people neither need to develop a theory to understand the emotion perceived in another, nor do they need to simulate the other’s mental state to understand the emotion they see in another’s face (2008); without further cognitive processing, people readily understand and recognize such emotions. Individuals are not a tabula rasa; some emotion recognition is innate. Even neonates can imitate expressions they see on another’s face (e.g., Meltzoff & Moore, 1997). However, early forms of empathy, such as a young child’s personal distress in response to the perceived distress of another (de Waal, 2008), are more reactive in nature than they are true empathy (Zahn-Waxler, Emde, & Robinson, 1992). With experience, more organized response patterns emerge, but the reactions demonstrated earlier in ontogeny are more an expression of the child’s own feelings than they are a sharing of the other’s feelings (Taylor, Eisenberg, Spinrad, Eggum, & Sulik, 2013).

However, emotional understanding through these phenomenological approaches seems to be derived from previous experience with said emotions through mechanisms such as those proposed by ST or TT. Previous experience informing subsequent similar experiences and leading to the ability to recognize an entity as a whole (e.g., a phenomenological approach) is
consistent with Lurian theory regarding simultaneous (top-down) and successive (bottom-up) processing of stimuli (Das, Kirby, & Jarman, 1975; Luria, 1968). Human psychological processes, regardless of how seemingly indivisible, are formed in a step-by-step, successive fashion, increasing in complexity to the point when the individual steps are combined or performed simultaneously to form the end product (Luria, 1966). They are functional systems, products of historical origin and of prolonged social development, with simpler activities being reorganized into more complex ones. A more obvious example of the processing described by Luria is the way children learn to read: They first recognize the individual phonemes and graphemes that form a word (i.e. successive processing); later, they can use simultaneous processing and recognition of the whole word, without needing to break it into its component parts (Posner & Raichle, 1994; Ramus et al., 2003). In an analysis of studies, both simultaneous and successive processing were applied to other perceptual process as well, to include the processing of the emotions portrayed in others’ facial expressions (Becker, Kenrick, Neuberg, Blackwell, and Smith (2007). The processing of emotions progresses in this fashion suggested an alternative means by which the supposed phenomena of direct perception (Gallagher, 2008) may be explained. Following Lurian logic, the instant recognition of others’ emotions through a phenomenological approach is first informed by a cognitive mechanism, such as those proposed by TT and ST. Therefore, rather than a phenomenological mechanism supplanting those proposed by TT and ST (Heal, 1998; Jensen & Moran, 2012; Lombardo et al., 2007), it is likely the very mechanisms proposed by these latter approaches make direct perception possible.

**Dimensions of Empathy.** There exist several different conceptions of empathy based not only in theory regarding how people display empathy, but also on what the term ‘empathy’ refers to. The literature regarding the nature of empathy offers cognitive, emotional, or conditioning...
views, conceiving empathy to be a unidimensional construct (Preston & de Waal, 2002). Cognitive conceptions pose empathy as the ability to understand the feelings of another without necessarily sharing those feelings (Carré, Stefaniak, D’Ambrosio, Bensalah, & Besche-Richard, 2013). Views favoring the mechanism of direct perception (Gallagher, 2008) fall under the category of approaches that see empathy as primarily affective in nature (Preston & de Waal, 2002). Proponents of an affective view define empathy as the sharing of another’s emotions (de Waal, 2008; Eisenberg et al., 1994). Such conceptions consider the cognitive component, known as perspective-taking, to be a separate construct; a notion suggesting that understanding of the other’s emotions is less a form of empathy than is the sharing of those emotions.

Contrary to cognitive and affective perspectives of empathy are views suggesting empathy is the result of conditioning (Preston & de Waal, 2002). This conceptualization considers the emotional distress of another as the Conditioned Stimulus (CS), with the object causing distress as the Unconditioned Stimulus (US; Preston & de Waal). From this perspective of empathy, the observed distress of another causes the observer to expect something distressing will follow (Clark, 2004; Kirsch, Lynn, Vigorito, & Miller, 2004), leading to a physiological response. Conditioning views focus more on the individual’s response to the perceived emotions of another; however, such reactions are not always empathic (Eisenberg et al., 1994). Personal distress (e.g., anxiety or discomfort) and sympathy (feeling sorry for the other without necessarily sharing those feelings) are both reactions to another’s emotions. These feelings may be based on a vicarious experience of the other’s emotions, and are likely associated with cognitive perspective taking (Eisenberg, 2005). They may be more egocentric in nature, based on concern for the self. Further, such responses can result from recall of information from memory and simulating the observed state of the other using one’s own experiences (Gallagher, 2008;
Therefore, conditioning concepts of empathy fall short of completely describing it because they can lead to responses that are more self-centered in nature than comprehension or sharing of the other’s emotional state (Eisenberg et al., 1994).

Cognitive and affective views of empathy are supported by research implicating different areas of the brain in understanding other’s mental states than those involved in sharing said states (Hynes, Baird, & Grafton, 2006). For example, lesions to the ventromedial prefrontal cortex impaired cognitive, but not affective empathy (Shamay-Tsoory, Aharon-Peretz, & Perry, 2009). Whereas, lesions in the inferior frontal gyrus impaired the affective components of empathy but left the cognitive components intact. This double-dissociation between the cognitive and affective components could support the existence of separate constructs, as well as arguments for either an affective or cognitive conception of empathy, as they support use of separate structures for cognitive and affective tasks. However, although structurally and functionally separable, factor analysis of such conceptions reveal that they are strongly related to each other. Therefore, unidimensional conceptions of empathy do not offer a complete explanation of the construct (Miklikowska, Duriez, & Soenens, 2011).

Much of the research supporting a multidimensional conception of empathy defines it in terms of emotional and cognitive components, but there are also those who suggest a third component, behavioral empathy. It includes the ability (Richaud de Minzi, 2013) and willingness (Muncer & Ling, 2006) to express an understanding in an accepting way, whether verbal or through one’s actions. Baron-Cohen & Wheelwright (2004) refer to this as emotional reactivity. Based on these findings, a complete definition of empathy should incorporate aspects related not
only to understanding and sharing of emotions, but also conditioned emotional reactions to the other’s state of mind.

**Definition of Empathy.** For the purposes of this study, empathy will be considered as a multidimensional construct, consisting of empathic concern, perspective taking, and emotional reactivity (Baron-Cohen & Wheelwright, 2004). Baron-Cohen & Wheelwright define empathy as “…the drive or ability to attribute mental states to another person/animal, [which] entails an appropriate affective response in the observer to the other person’s mental state” (p.168). In these terms, empathy is comprised, not only understanding and feeling another’s state of mind, but also responding from a perspective more closely resembling that of the observed, rather than that of the observer. Perspective taking is understanding the emotional state of another and relating to his or her story (i.e. comprehension of the emotions, or cognitive empathy; Borke, 1973; Dadds et al., 2009), which brings to the observer’s mind shared representations of those emotions automatically. Bringing these shared representations to mind leads to a similar emotional state in the observer (de Waal, 2008; Preston & de Waal, 2002). This is known as emotional empathy (Dadds et al., 2009) or empathic concern (Baron-Cohen & Wheelwright, 2004). The final component of this definition is emotional reactivity, which involves an individual’s physiological response to the emotions of another (Baron-Cohen & Wheelwright, 2004).

**Developmental Trends in Empathy.** Whether dispositional (a trait of the person) or situational (relative to specific incidents, rather than a propensity for empathic response across situations; Siegler, DeLoache, & Eisenberg, 2011), empathy is an important aspect of human emotion; understanding and sharing the feelings of others is related to prosocial behavior (Eisenberg, 2000; Ellis, 1982; Lonigro, Laghi, Baiocco, & Baumgartner, 2014; Richaud de Minzi, 2013). A child’s perspective evolves from that of a relatively egocentric infant to the
more developed ability of an adolescent to see things from the perspective of another. As they develop, children go from perceiving distress in others, to being concerned regarding the feelings of others, to understanding these feelings, and finally culminating in the ability to share these feelings (de Waal, 2008). However, regardless of age, inducing the experience of empathy for members of a stigmatized group leads to a more positive attitude toward said individuals, weeks later (Eisenberg, 2000). Even in the absence of personal experience with an emotion, individuals can understand the feelings of another (Danziger, Faillenot, & Peyron, 2009).

Empathy as an inherited biological trait is supported by findings that even from birth humans are responsive to emotions in others (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). At an early age, children display a conscious awareness of others’ feelings, and that these feelings are different from their own (Borke, 1973). Even newborns cry in reaction to the perceived distress of another (Taylor et al., 2013), suggesting such abilities are innate. Before the age of 2, children display the cognitive, affective, and behavioral ability to display concern for others experiencing distress (Zahn-Waxler, Emde, et al., 1992). By 3 years of age, children recognize social situations associated with happy and unhappy responses (Borke, 1973). The development of empathy may be thought of as a continuous process that proceeds through a series of hierarchical stages with qualitative differences in empathy based on age (Borke). The most advanced stage of empathy, seeing another’s perspective, does not appear until adolescence.

In a study of American and Chinese children between the ages of three and six, both groups of children exhibited similar overall trends in the development of empathy (Borke, 1973). These findings supported the development of empathy as a universal characteristic of humans related to social adaptation. However, it is unclear whether this developmental trend is based on
nature or nurture, or some complex interaction of the two. Rather than being inherited from their parents, parents may affect the development of empathic abilities through the environment they provide for their offspring (Richaud de Minzi, 2013). Imitation is one means infants use to understand parents’ and others’ emotions (Zahn-Waxler, Radke-Yarrow, et al., 1992). Research regarding the socialization of guilt, shame, and empathy, supports the use of inductive reasoning to help children understand the effects of their actions (Eisenberg, 2000). Getting children to internalize instructions and feedback from parents is a very Vygotskian notion, and an initial stage in what Vygotsky (1978) calls “private speech”. Per Vygotsky, children are taught strategies for completing different tasks (Schunk & Zimmerman, 2013). These strategies go through a series of transformations (Vygotsky, 1978); over time, the child internalizes the behaviors and instructions of a more experienced other. The child first hears these instructions and observes the modeled behavior, subsequently engaging in private speech (i.e. talking through the necessary steps as he acts them out), and finally internalizing the private speech as a verbally encoded model of the requisite set of behaviors. From Vygotsky’s approach, parents’ modeling of empathy affects development of empathy in their children.

Parents’ interactions with children can influence the development of empathy in many ways, either positively or negatively (Richaud de Minzi, 2013). More responsive, less authoritarian parenting (i.e., authoritative parenting) leads to better developmental outcomes (Steinberg, 2014). During infancy, a child’s emotional development is influenced by the degree to which a caregiver provides an emotionally stimulating environment, reinforces and encourages emotional displays at the appropriate times, and responds to the children’s needs (Richaud de Minzi). Authoritarian parenting and punishment behaviors are related to lower levels of both cognitive and affective empathy (Richaud de Minzi, 2013; Steinberg, 2014).
Children whose parents reasoned with them about their behavior as a means of conveying to children an understanding of how their actions affect another displayed more reparative and apologetic behavior than did children whose parents were more punitive in nature (Eisenberg, 2000). By providing practice and reinforcement of desired behaviors, parents help their children develop prosocial expression and interpretation of emotion, whereas parents who model antisocial expression and interpretation of emotion affect such behaviors and emotions in their children (Richaud de Minzi). The caring and empathy expressed by a mother towards her children offers a positive model of social interaction for the children (Zahn-Waxler, Radke-Yarrow, & King, 1979), provided they perceive the mother’s behavior as empathetic and caring (Richaud de Minzi).

Parents are not the only adult models of empathic behavior; teachers can also affect a child’s empathy. They can do so indirectly by understanding and empathizing with the child’s parents/caregivers (Broomhead, 2013), and directly, as through interactions wherein children are taught not only prosocial modes of behavior, but also to develop a sense of competence in their interactions with others and the world as a whole (Mahmoudi & Moshayedi, 2012). Educating a child in socio-emotional skills as well as academics not only affects positively the development of empathy but also improves a child’s attainment of academic goals (Bencivenga & Elias, 2003; Bonner & Aspy, 1984; Tapia & Marsh, 2006; Zorza, Marino, de Lemus, & Mesas, 2013). As instruction intended to improve empathy and social skills also improves academic performance (Tapia & Marsh, 2006; Zorza, Marino, de Lemus, & Mesas, 2013), such methods could be useful for improving empathy without negatively impacting academic progress.

Although some have suggested that a sense of self may get in the way of empathy (Richard-Mornas et al., 2014), the body of research supports the idea that an intact sense of self
is necessary to have a sense of others’ feelings (Johnstone, Cohen, Bryant, Glass, & Christ, 2015). Further, many of the same areas of the brain involved in processing empathy and understanding our own mental states are also involved in understanding the mental states of others, and developing a theory of mind (Wellman, Cross, & Watson, 2001). Empathy is important in and of itself; understanding and sharing the feelings of others is related to prosocial behavior (Ellis, 1982; Lonigro et al., 2014), sharing of feelings has also been found to be related to achievement in a number of domains, including reading (Feshbach & Feshbach, 1987). Some studies suggest a link between reading enjoyment and achievement (J. K. Smith, Smith, Gilmore, & Jameson, 2012), but positive socialization and empathy goals have also been shown to positively affect academic achievement (Bettler, Burns, & Strother, 2005), including achievement in reading (Feshbach & Feshbach, 1987).

**Reading**

Reading is an interactive process between author and reader wherein the reader works with the text, incorporating aspects of psychology, linguistics, and sociology to create meaning (Abu-Shihab, 2011). Readers use existing knowledge to interpret and fill informational gaps in the text (Abu-Shihab, 2011; Kintsch, 2009). Good readers are better at organizing ideas and encoding the presented information than are poor readers (Tyler, Delaney, & Kinnucan, 1983). A good reader knows what information to pay attention to, whereas poor readers have difficulty discerning the important from the unimportant. For a reader to not only comprehend a story but also relate, the reader must imagine what the characters are thinking and feeling (Altmann, Bohn, Lubrich, Menninghaus, & Jacobs, 2012). The good reader understands how both the presented material and what is missing from this material work together to convey an author’s perspective.
Among the abilities required of a good reader are the capacity to recognize words and phonemes, and the capability to understand the intended meaning of a text (Nation, Clarke, & Snowling, 2002). As such, reading skills are associated with comprehension (Wallot, O'Brien, Haussmann, Kloos, & Lyby, 2014). However, reading is not simply the comprehension of information (Kintsch, 2009); it is also critical thinking (Abu-Shihab, 2011). In addition to mere comprehension of words and sentences, a reader needs the ability to make inferences, bridging successive ideas (Kintsch, 2009), to be skilled at using background knowledge and consideration of the context in which ideas are presented, and the ability to consider information in light of pragmatic concerns (Ferstl, Neumann, Bogler, & von Cramon, 2008).

Reading daily as a habit is not only related to better reading skills, but also higher academic achievement, whereas poor reading ability is related to lower levels of financial and employment success (National Endowment for the Arts, 2007). Reading daily for enjoyment is associated with better scores on measures of reading achievement (Organization for Economic Co-operation and Development, 2011; J. K. Smith et al., 2012), such as the Programme for International Student Assessment’s (PISA) reading scale (Organization for Economic Co-operation and Development, 2011).

**Gender**

Biological sex is defined based on the roles that males and females play in reproduction ("Gender Identity," 2016). Gender, however, is less well defined. Although physical sex is determined by biology and sexuality affects the brain (Rad et al., 2014), both biology and socialization influence expression of psychological traits considered to be gender-typical (Christov-Moore et al., 2014; Eagly & Wood, 2013). Differences in prenatal hormone levels and timing may explain some of the difference between the physical and psychological gender of an
individual (Bao & Swaab, 2011; D. J. Bem, 1996; Collaer & Hines, 1995; Davis & Risman, 2015). Because sexual differentiation of the brain takes place at a much later stage than sexual differentiation of the genitals, the two processes can be influenced independently of each other (Bao & Swaab, 2011). Thus, biology influences gender not only through determination of the physical characteristics but also through the effect of hormones on cognitive development. However, although physical and psychological gender are affected by biology (Bussey & Bandura, 1999), social interactions, particularly with parents, and the cultural influence parents are instrumental in acculturating children to their gender roles (Richaud de Minzi, 2013). Evolution provides the physical structures, but psychological gender is primarily a result of interactions among biological influences and the various social influences within a culture (Bussey & Bandura, 1999; Davis & Risman, 2015). Thus, sex may be considered dichotomous, but gender is a continuum (Freeman & Knowles, 2012).

**Gender and Empathy**

Research supports a gender gap in empathy that favors female gender (Beutel & Marini, 1995; Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991; Hojat et al., 2002; Kobach & Weaver, 2012; Uzefovsky et al., 2014; Wehrens et al., 2010; Zahn-Waxler, 1993; Zahn-Waxler, Emde, et al., 1992), and prosocial behavior (Németh, 1999; Uzefovsky et al., 2014), especially in the emotional reactivity dimension of empathy (Andrew, Cooke, & Muncer, 2008; Kobach & Weaver, 2012). Girls score higher than boys in most measures of emotional concern for others (Zahn-Waxler, Emde, et al., 1992) and express more concern and responsibility for the well-being of others (Beutel & Marini, 1995). The stereotypical female is nurturing and empathetic, whereas males are stereotypically portrayed as less ruled by emotion than cognition (Christov-Moore et al., 2014). In their study of twins during their second year of life, Zahn-Waxler, Emde,
et al. (1992) found that, although components of concern for others increased with age, girls tended to score higher in emotional reactivity than boys across age groups. Interestingly, other researchers have also found gender differences in ability to interpret body language (Kruger, Sokolov, Enck, Krageloh-Mann, & Pavlova, 2013). Important in social interaction, body language tells us a lot about what a person is feeling. Correct interpretation of body language is important to successful social interaction, but rather than female superiority in social cognition, Kruger et al. (2013) suggest that males show greater recognition of, and receptiveness to, happy walking in subtle emotions portrayed by female actors. In contrast, the researchers found females to be better at recognizing a hostile, angry locomotion in males.

**Gender and Reading**

As with empathy, much research supports a gender difference in reading ability (e.g., Canadian Council on Learning, 2009; Geske & Ozola, 2009; Mucherah & Herendeen, 2013; Organization for Economic Co-operation and Development, 2010; Robelen, 2010). Girls perform better than boys in measures of academic achievement in reading (McCoy, Byrne, & Banks, 2012; Organization for Economic Co-operation and Development, 2011), indicating that girls may be better at bridging informational gaps within a text (Drum, 2012; Klecker, 2005).

Girls also enjoy reading more (Organization for Economic Co-operation and Development, 2011), and tend to read more, offering not only a possible explanation for the gender gap in reading achievement, but also underscoring the importance of an individual’s attitude toward reading (Mosenthal, Lipson, Torncello, Russ, & Mekkelsen, 2004).

**Empathy and Reading**

Though at least one study suggests no correlation between levels of empathy and reading narrative fiction (Whalen, 2010), most of the research supports a connection between the two
The body of research suggests that, as familiarity with aspects of a story increases, so too does the likelihood of the reader being “transported into the narrative world,” feeling as though they are a part of the story (Green, 2004), or “getting lost in a book.” Using functional magnetic resonance imaging (f-MRI), Hsu et al. (2014) tied the experience of “getting lost in a book” to engagement of the affective empathy network in the brain. Support of this idea is found in the “mood empathy hypothesis” (Lüdtke et al., 2014), wherein engagement with emotional content in the narrative causes readers to mentally simulate the portrayed situation, and ultimately to emotionally relate to the depicted state of affairs, a process quite like true empathic concern. The “fiction feeling hypothesis” of Hsu et al. (2014), also supports this connection, noting that readers of narratives with an emotional component are more likely to empathize with characters in stories, to become emotionally involved in the narrative. In particular, the investigators noted that stories with a fear-inducing component appear to invite readers to be more empathic than do stories with neutral affect.

**Empathy, Reading, and Gender**

Gender gaps have been noted, both in empathy (Beutel & Marini, 1995; Dunn et al., 1991; Hojat et al., 2002; Kobach & Weaver, 2012; Uzefovsky et al., 2014; Wehrens et al., 2010; Zahn-Waxler, 1993; Zahn-Waxler, Emde, et al., 1992) and in reading (e.g., Canadian Council on Learning, 2009; Geske & Ozola, 2009; Mucherah & Herenden, 2013; Organization for Economic Co-operation and Development, 2010; Robelen, 2010), both in favor of females. Disorders related to deficits in empathy (e.g., autism spectrum disorders; Baron-Cohen, 2002; and disorders with psychopathic traits; Dadds et al., 2009) are more prevalent in males. However, studies noting said differences primarily measure gender based on physical
characteristics, rather than psychological gender, or personality characteristics typically associated with one gender or the other. Based on research suggesting stronger predictive value of psychological gender, the purpose of the current study was to investigate the relationship among factors related to empathy, reading, and gender. The hypotheses were as follows: (a) higher levels of empathy would be correlated with female gender; (b) greater appreciation for reading, as well as more reading behaviors (i.e. amount of reading and time spent reading) would be positively correlated with female gender; (c) higher levels of empathy would be correlated with greater appreciation for and amount of reading; (d) psychological gender would be more predictive than physical gender of empathy; and (e) psychological gender would be more predictive than physical gender of reading appreciation and reading behaviors.
Chapter 3: Methodology

As stated, the purpose of this study was to investigate the relationship among empathy, reading, and gender. A self-report measure was used that included items associated with demographics, empathy, reading, and gender, administered in an online survey. Participants were drawn from the Ball State University students, faculty, and staff, and recruited via email and a posting of the survey to the Educational Psychology Research Pool website. Reading behaviors and appreciation were operationalized with items drawn from the National Assessment of Educational Progress (NAEP; National Center for Education Statistics, 2013) and Programme for International Student Assessment (PISA; Organization for Economic Co-operation and Development, 2010). Empathy items were drawn from the Empathic Concern, Perspective Taking, and Emotional Reactivity subscales of the Empathy Quotient (Baron-Cohen & Wheelwright, 2004). Finally, gender was measured in three ways: (a) a demographic item indicating physical gender as male or female; (b) items drawn from the Bem Sex Role Inventory (BSRI; S. L. Bem, 1974) masculine and feminine scales, and (c) a 5-point, Likert-type item measuring psychological gender on a continuum, with responses ranging from extremely feminine to extremely masculine. Factor analyses were conducted to confirm that survey items loaded on the expected constructs. Due to investigation of multiple variables on both sides of the equation, as well as correlations among the empathy factors (see Table 1), a canonical correlation analysis was conducted to establish the relationships of reading and gender constructs to empathy.
Table 1

*Empathy Principle Axis Factor Correlation Matrix*

<table>
<thead>
<tr>
<th>Factor</th>
<th>Perspective Taking</th>
<th>Emotional Reactivity</th>
<th>Empathic Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perspective Taking</td>
<td>1.00</td>
<td>0.38</td>
<td>0.42</td>
</tr>
<tr>
<td>Emotional Reactivity</td>
<td>0.38</td>
<td>1.00</td>
<td>0.69</td>
</tr>
<tr>
<td>Empathic Concern</td>
<td>0.42</td>
<td>0.69</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Note.* Promax rotation with Kaiser normalization

**Participants**

Participants were students, staff, and faculty at Ball State University, age 18 years or older (see Table 2). Of the 21,196 students enrolled at Ball State University in 2016, 4,919 (23%) were education students (i.e. pursuing a major, minor, certificate, or degree in one of the following programs: Educational Leadership, Educational Psychology, Educational Studies, Elementary Education, Special Education, or an Interdepartmental course of study within Teachers College, at either the graduate or undergraduate level; Ball State University Office of Institutional Effectiveness, 2016). Removing those pursuing a minor from this total (to eliminate duplicate counting of individuals) brought the number to 4,458 (21%). Of the 683 respondents to the survey, 129 (19%) were pursuing a major in education. Thus, in this respect, the sample was fairly representative of the population from which it was drawn. However, students accounted for approximately 73% of the sample, but they account for almost 86% of the total population of Ball State University. In terms of gender, the sample was considerably more female than was the population of Ball State. Both the sample and population are primarily White, but the sample had a greater proportion of Whites than the university as a whole (90% compared to 80%). The percentage of Asians in the sample approximated that of the university, but the Black and Hispanic populations were under-represented in the sample by about 2-3% when compared with the university population. After removing participants with missing data for one or more of the
empathy, reading, or gender factors, and those determined by Mahalanobis distance to be outliers 
\( n = 16; \chi^2 > 32.91, p = .001 \), the final sample consisted of 540 participants. Sixty-three percent 
of the sample was between the ages of 18 and 25. The average GPA for students was 3.38 (SD = 
.57), compared to 3.47 for the University (Peterson's, 2016).

Table 2

_Demographics for Ball State University and the Study Sample_

<table>
<thead>
<tr>
<th></th>
<th>Ball State University</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( n )</td>
<td>%</td>
</tr>
<tr>
<td>Students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate</td>
<td>4,594</td>
<td>21.67</td>
</tr>
<tr>
<td>Undergraduate</td>
<td>16,602</td>
<td>78.33</td>
</tr>
<tr>
<td>Staff</td>
<td>2,010</td>
<td>8.15</td>
</tr>
<tr>
<td>Admin</td>
<td>220</td>
<td>.89</td>
</tr>
<tr>
<td>Faculty</td>
<td>1,245</td>
<td>5.05</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>13,100</td>
<td>61.80</td>
</tr>
<tr>
<td>Male</td>
<td>8,096</td>
<td>38.20</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>281</td>
<td>1.33</td>
</tr>
<tr>
<td>Black</td>
<td>1,464</td>
<td>6.91</td>
</tr>
<tr>
<td>Hispanic</td>
<td>843</td>
<td>3.98</td>
</tr>
<tr>
<td>White</td>
<td>16,670</td>
<td>78.65</td>
</tr>
<tr>
<td>Other/Undefined</td>
<td>1,938</td>
<td>9.14</td>
</tr>
<tr>
<td>Total</td>
<td>24,671</td>
<td></td>
</tr>
</tbody>
</table>

_Note._ Ball State University Office of Institutional Effectiveness (2016)

Measures

The instrument used in this study was comprised of items from existing measures (see 
Appendix A). The reading items were from instruments used in the assessment of educational 
progress, both at the national (NAEP) and international (PISA) levels. The empathy items were 
drawn from subscales of the Empathy Quotient, developed by Baron-Cohen and Wheelwright 
(2004), and (other than a Likert-type item developed specifically for this study) the gender items 
were drawn from an existing gender inventory, the Bem Sex Role Inventory (BSRI; S. L. Bem,
The next three sections of the methodology describe how the empathy, reading, and gender items were chosen.

**Empathy.** To measure empathy, fifteen items were adapted from the Empathy Quotient Test (Baron-Cohen & Wheelwright, 2004). There were five items from each of the subscales of Emotional Reactivity, Perspective Taking, and Empathic Concern. These items were presented using a four-point, Likert-type, agreement scale, with options from strongly disagree to strongly agree. Because they loaded negatively on their respective factors, four items (I usually stay emotionally detached and If I say something that others are offended by… for Emotional Reactivity, and I sometimes find it difficult to see things from another person’s point of view, and If I’m sure I’m right about something, I don’t waste much time… for Perspective Taking) were reverse coded for analysis in SPSS. The complete scale had good ratings of internal consistency, with reported Cronbach’s $\alpha = .89$ (Wakabayashi et al., 2006). Thomson and associates (2015) noted the Empathy Quotient as being the most reliable and valid empathy scale to date. In a sample of college students, Thomson et al. found test-retest reliability of $r = .97$ and a Cronbach’s $\alpha = .92$, demonstrating excellent reliability.

**Reading.** The reading items for this study assess the amount of reading done and appreciation of reading (see Appendix A). Three items assessed reading behaviors. Two items from the PISA Student Questionnaire ask how many non-fiction books and how many fiction books were read for pleasure during the last 12 months (Organization for Economic Co-operation and Development, 2010). An additional PISA survey item asked how much time each day was spent reading for enjoyment, with I don’t read for enjoyment; 30 minutes or less; Between 30 and 60 minutes; 1 to 2 hours a day; and more than 2 hours a day as response choices.
Nine items were adapted from the PISA Student Questionnaire to gauge reading appreciation. Based on the idea that students’ self-perceptions affect reading ability as well as enjoyment of reading (J. K. Smith et al., 2012), one item from the National Assessment of Educational Progress (NAEP; National Center for Education Statistics, 2013), “I am a poor reader,” was added to assess the students’ reading self-efficacy. Together, these items comprised the reading appreciation portion of the scale. Except for the frequency and quantity of reading items, all reading items were answered on the same four-point, Likert-type agreement scale used for the empathy items (response choices were Strongly Disagree, Disagree, Agree, and Strongly Agree). The PISA reading for enjoyment scale from which the items were drawn demonstrated a reliability $\alpha = .92$ in the United States, with a median $\alpha = .90$ across the 34 countries participating in the PISA assessment (Organization for Economic Co-operation and Development, 2012).

Although these items were intended for use with high school students, the scale was chosen for use in the current study based on the need for a current, consistent measure of reading appreciation across ontogeny. Further, although the complete selection of items chosen for this scale did not appear together on a single measure of adult reading appreciation, reading attitudes or reading motivation, many of the same items (e.g. Brooks, 1996; National Endowment for the Arts, 2007; M. C. Smith, 1990) or similar ones (i.e. developed for the same aspect of reading appreciation as an item on the scale used in the current study, e.g. Rodrigo, Greenberg, & Segal, 2014) appeared on some of the adult scales. Those items not represented on another scale find support for use with an adult population in the literature, in that they measure constructs integral to reading appreciation. The item, “Reading is one of my favorite activities” assesses intrinsic motivation to read, or a willingness to engage in reading simply because reading itself is
rewarding (Schiefele & Schaffner, 2016), but it is also similar to an item on the scale used by Rodrigo and colleagues (2014), “In general, would you say that you like reading?”. The item, “When I read, I sometimes get totally absorbed.” is a single item addressing the 5-item “Involvement factor” on the Schiefele and Schaffner (2016) scale, and the NAEP item, “I am a poor reader” was included based on the importance or reading self-efficacy, not only to appreciation of reading, but also to self-efficacy in other areas (Schunk & Zimmerman, 2013). Further, reading self-efficacy affects intent to read (Levitt & Red Owl, 2013), thus making this item important to the current research.

**Gender.** Finally, gender was considered both as a physical attribute and as a psychological dimension (S. L. Bem, 1974; Choi, Fuqua, & Newman, 2009; Erkan, Özbay, Cihangir-Çankaya, & Terzi, 2012; Holt & Ellis, 1998). Physical gender was indicated on a demographic variable. To measure psychological gender, ten terms from the reduced Bem Sex Role (S. L. Bem, 1981) were selected based on reported factor loadings for self-ratings of traits on Masculine and Feminine factors (see Appendix A, Choi et al., 2009) and the degree to which the trait was determined to identify a unique aspect of personality with respect to other terms on the list. The Masculine traits were Independent, Strong, Analytical, Aggressive, and Competitive; the Feminine traits were Affectionate, Sensitive, Understanding, Compassionate, and Gentle. The participants indicated how much each term was like them. Together, the masculine and feminine scales of the BSRI were reported as having yielded reliability coefficients above .80 ($\alpha_M = .85$; $\alpha_F = .81$), with a short form yielding slightly higher coefficients ($\alpha_M = .82$; $\alpha_F = .89$; Choi et al., 2009). Though in use since 1974, recent studies confirm the validity of the instrument, not only in a population of college students (Peralta, Stewart, Steele, & Wagner, 2016), but also for participants of all ages (Oswald, 2004). Peralta and colleagues (2016) conducted individual
factor analyses for each gender scale and found one-factor solutions for both. Further, the Bem continues to be one of the most widely used gender scales; a search of Academic Search Premier, ERIC, PsycARTICLES and PsycINFO for just the last two years (2015-2017) yielded 163 results (e.g., Dean & Tate, 2016; Donnelly & Twenge, 2016; Ferrer-Pérez & Bosch-Fiol, 2014; Kray, Howland, Russell, & Jackman, 2017; Kurpisz et al., 2016; Rammsayer, Borter, & Troche, 2017). As such, inclusion of items from this scale in the current study was justified.

Additionally, a five-point, Likert-type scale item was included to measure psychological gender: “Regardless of your physical sex, where do you see your personality regarding gender,” with Very Masculine, Masculine, Equally Both, More Feminine, and Very Feminine as response options. This item was included based on the findings suggesting that the terms “masculine” and “feminine” were almost as efficient as the entire 60-item BSRI at discriminating between the two sexes (97.70% for the two terms, versus 98.30% for the full scale; Choi, Fuqua, & Newman, 2008).

**Procedure**

Once the proposed study was approved by the Ball State University Institutional Review Board, students at Ball State University were solicited to respond to an online survey using Qualtrics (see Appendix A), through the Educational Psychology Department Research Subject Pool. Participants were enrolled in educational psychology courses where instructors assign credit through different options, including completing research activities. Participants received "one" credit (equivalent to one hour of participation). In addition, participants were solicited through the Communications Department in the form of a posting on the Communication Department website, as well as via email. Participants responded to the previously described items regarding empathy, gender, and quantity and appreciation of reading. In addition,
respondents provided demographic information regarding their ethnicity, gender, age, and GPA (see Cassady, 2001 for validity of self-report GPA). Participant names were not connected to their responses; all data was collected anonymously. At the end of the survey, participants were offered the chance to print the last page as proof of completion, were it necessary to receive extra credit for a psychology course.

Analyses

Data were checked to confirm they met assumptions of multivariate normality (see Figures 1 and 2), linearity (see Figure 3), and homoscedasticity (see Figure 4). As these plots demonstrate, all three assumptions were met.

Figure 1. Multivariate Normality Histogram
Figure 2. Multivariate Normality Q-Q Plot
Figure 3. Linearity Plot of Regression Standardized Residuals
Figure 4. Residuals Plot Demonstrating Homoscedasticity

$Z$-scores were calculated for each of the factors and used to put the measures on the same scale. To support the psychometrics of the measures, factor analyses were conducted. This also served to confirm that the gender, reading appreciation, and empathy subscale items, converged into the expected factors: two gender factors, one factor for reading appreciation, and the three empathy factors: empathic concern, emotional reactivity, and perspective taking.

Upon confirmation of the underlying factor structure, the three empathy factors, one factor for reading appreciation, and two gender factors from the Bem (1974) items were included in the final instrument. The reading quantity and time items were used as stand-alone measures, as were the psychological and physical gender items. Due to the existence of multiple variables
on both sides of the equation, a canonical correlation was conducted to address the research questions. A canonical correlation is designed to facilitate estimations of correlation coefficients between multiple dependent and independent variables (Tabachnick & Fidell, 2012). In addition to detection of a relationship between sets of variables, this technique works to optimally combine these sets, such that the correlation between them is maximized. Reliability estimates were calculated for each of the measures (see Table 3).

Table 3

<table>
<thead>
<tr>
<th></th>
<th>Empathy</th>
<th>Reading</th>
<th>BSRI Feminine</th>
<th>BSRI Masculine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous Research</td>
<td>.89</td>
<td>.92</td>
<td>.89</td>
<td>.82</td>
</tr>
<tr>
<td>Current Study</td>
<td>.82</td>
<td>.92</td>
<td>.81</td>
<td>.52</td>
</tr>
</tbody>
</table>

**Factors.** The empathy scale demonstrated good reliability in the sample (Cronbach’s $\alpha = .82$). Exploratory factor analysis using principal axis factoring and a Promax rotation confirmed the existence of a 3-factor structure for the empathy items. Further, except for cross-loading of one item from the Empathic Concern subscale onto the Emotional Reactivity factor, the items associated with each subscale of the EQ (Baron-Cohen & Wheelwright, 2004) loaded with other items from that same subscale (see Table 4). The perspective taking items loaded on the first factor, which had an eigenvalue of 4.24 and accounted for 28.26% of the variance in the scale. The emotional reactivity items loaded on the second factor (eigenvalue = 1.91), which accounted for 12.70% of the total variance in the scale, and the empathic concern items loaded on the third factor (eigenvalue = 1.13) which accounted for another 7.52% of the variance, for a total variance explained = 48.49%. Only factors with eigenvalues $\geq 1.00$ should be retained in a solution (Tabachnick & Fidell, 2012); of the possible factors suggested in the solution, only these three yielded eigenvalues $\geq 1.00$. 
Factor analysis of the reading appreciation items yielded a single factor solution, with an eigenvalue of 6.02. The reading appreciation scale demonstrated good reliability in the sample (Cronbach’s $\alpha = .92$). This was the only factor in the suggested solution to yield an eigenvalue $\geq 1.00$.

Table 4

*Pattern Matrix of Factor Loadings for Empathy Scale Items*

<table>
<thead>
<tr>
<th>Item</th>
<th>Perspective Taking</th>
<th>Emotional Reactivity</th>
<th>Empathic Concern</th>
</tr>
</thead>
<tbody>
<tr>
<td>I tend to get emotionally involved with a friend’s problem.</td>
<td>.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seeing people cry really upsets me.</td>
<td>.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I enjoy caring for other people.</td>
<td>.52</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I usually stay emotionally detached when watching a movie</td>
<td>-.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If I say something that others are offended by, I think that is their problem, not mine.</td>
<td></td>
<td></td>
<td>-.31</td>
</tr>
<tr>
<td>I sometimes find it difficult to see things from another person’s point of view.</td>
<td>-.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I try to look at everybody’s side of a disagreement before I make a decision.</td>
<td>.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I try to understand people better by imagining how things look from their perspective.</td>
<td>.66</td>
<td></td>
<td></td>
</tr>
<tr>
<td>If I’m sure I’m right about something, I don’t waste much time listening to other people’s arguments.</td>
<td>-.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>When I’m upset by someone, I usually try to put myself in their shoes.</td>
<td>.55</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am very sympathetic toward people less fortunate than me.</td>
<td></td>
<td>.33</td>
<td></td>
</tr>
<tr>
<td>I usually feel sorry for other people when they are having problems.</td>
<td>.33</td>
<td>.43</td>
<td></td>
</tr>
<tr>
<td>When I see someone being taken advantage of, I feel kind of protective towards them.</td>
<td></td>
<td></td>
<td>.69</td>
</tr>
<tr>
<td>Other people’s misfortunes disturb me a great deal.</td>
<td></td>
<td></td>
<td>.43</td>
</tr>
<tr>
<td>When I see someone being treated unfairly, I feel a great deal of pity for them.</td>
<td></td>
<td></td>
<td>.80</td>
</tr>
</tbody>
</table>

*Note.* $N = 540$.

The gender personality items loaded on 2 factors, with the feminine items loading on the first factor, and masculine items loading on the second (see Table 5). The feminine personality
characteristics together yielded a Cronbach’s α = .81, demonstrating good reliability. One of the masculine traits, Analytical, did not sufficiently load on either gender factor; for this reason it was excluded from further analysis. The remaining masculine personality items yielded a Cronbach’s α = .52, and the Likert-type, Gender Continuum measuring psychological gender yielded a Cronbach’s α = .82.

Table 5

<table>
<thead>
<tr>
<th>Factor Loading</th>
<th>Female</th>
<th>Male</th>
<th>t</th>
<th>p†</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Factor</td>
<td>Mean</td>
<td>Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Term</td>
<td>SD</td>
<td>SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender Continuum</td>
<td>3.83</td>
<td>2.22</td>
<td>-24.77††</td>
<td>.000</td>
</tr>
<tr>
<td>Bem Factors</td>
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<tr>
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<td>3.80</td>
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<td>-2.41††</td>
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<td>Aggressive</td>
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<tr>
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<td>3.82</td>
<td>4.35</td>
<td>5.91††</td>
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</table>

Note. N = 540; Female = 431, Male = 109. Equal variances assumed.
†: did not sufficiently load on a factor.
‡: 2-tailed significance††: Equal variances not assumed.

T-tests investigating the likelihood that females and males differed in how they answered the gender items revealed significant differences between their means on the Gender Continuum, for the Feminine Bem Factor and all of the feminine items except Gentle, for the masculine Bem
items “competitive” and “strong”, and for “analytical” (see Table 5). The t-test results further called into question the validity of the Masculine Bem scale.

**Canonical Correlation.** To discover the relationship between the set of the empathy scales and the reading behavior and appreciation of reading factors (the first two research questions), the empathy factors were entered in Set 1, while the reading factors were entered in Set 2. To explore the relationship between gender and empathy (the third research question) and address differences between the predictive power of physical and psychological gender (the final research question), physical and psychological gender were entered along with the reading variables as independent variables in the canonical correlation. Mean differences for factors found to be significant were compared.
Chapter 4: Results

The means and standard deviations for the instrument yielded an interesting pattern of relationships (see Table 6). Overall, the gender means suggested that division of participants based on physical gender represents a false dichotomy. Although trending slightly feminine (half of a point on a 5-point scale), responses on the Gender Continuum trended toward the middle. In other words, despite the sample being 80% female, participants tended not to identify as masculine or feminine, but equally both. Even those who did identify with one gender more than the other tended not to identify as very masculine or very feminine, further supporting a trend toward gender neutrality. Responses for the Bem factors also trended slightly feminine. In terms of masculine factors, the Independence factor was endorsed considerably more than the Competitive factor, suggesting independence as more acceptable than competing.

Table 6

*Means and Standard Deviations for the Factors and Variables*

<table>
<thead>
<tr>
<th>Factor</th>
<th>Mean</th>
<th>SD</th>
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<td>Physical gender</td>
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<td>Perspective Taking</td>
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<td>Empathic Concern</td>
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<td>Reading Appreciation Factor</td>
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<td>.60</td>
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<tr>
<td>Number of Fiction Books Read/ Year</td>
<td>8.44</td>
<td>11.65</td>
</tr>
<tr>
<td>Number of Non-Fiction Books Read/ Year</td>
<td>2.81</td>
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</tr>
<tr>
<td>About how much time each day do you read for enjoyment?</td>
<td>2.47</td>
<td>1.00</td>
</tr>
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</table>

*Note. N = 540*
Means and standard deviations for the empathy scales suggested relatively equal endorsement of each dimension by the sample; the reading variables, however, did not. On average, participants in the sample tended to read more fiction than non-fiction books, but there was greater variability in the amount of fiction reading. This was evidenced not only by the relatively large standard deviation in number of fiction books read when comparing it to the mean number of fiction books, but also by the fact that the mean for fiction books was slightly more than three times that of the mean for non-fiction books. Finally, the mean for time spent reading across both fiction and non-fiction books suggested the sample spent an average of approximately 30-60 minutes daily, reading for pleasure.

For the canonical correlation analysis, the reading and gender variables were entered as independent variables (IVs) and the three empathy variables of Emotional Reactivity, Perspective Taking, and Empathic Concern were entered as dependent variables (DV$s$). Of the three canonical correlations, only the first two were found to be statistically significant (see Table 7).

Table 7

<table>
<thead>
<tr>
<th></th>
<th>Eigenvalue</th>
<th>Wilks</th>
<th>$F$</th>
<th>Num $df$</th>
<th>Denom $df$</th>
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<td>.99</td>
<td>1.12</td>
<td>6</td>
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<td>.351</td>
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</table>

All three empathy factors loaded positively on the first variate pair (using .30 as the cutoff value; Tabachnick & Fidell, 2012), as did feminine gender personality characteristics on the predictor side (aside from Empathic Concern in the second variate pair, only variables loading above the .30 threshold are included in Figure 5). The Gender Continuum was the only
other predictor to load sufficiently in the first variate pair. The pattern of loadings in variate pair 1 suggested that greater femininity was correlated with all three empathy dimensions, and in the same direction, but masculinity was negatively correlated. Such that, as femininity increased, so did the empathy factors. The three empathy factors, along with the Bem feminine factor were strongly correlated, and the Gender Continuum demonstrated a moderately negative correlation. (the higher masculinity, the lower empathy) Emotional Reactivity was the empathy factor most strongly associated with the first canonical variate pair, followed by empathic concern, and finally perspective taking. In set two of the first variate pair, femininity was the strongest contributor, with the Gender Continuum being the only other item that loaded sufficiently on the variate pair.

In the second variate pair, all three empathy factors continued to be correlated with the empathy variate, but the pattern of correlation changed. Perspective Taking was the most strongly correlated of the empathy factors, and Empathic Concern demonstrated a much weaker positive relationship; it did not sufficiently load on the variate. Although Emotional Reactivity was the most strongly correlated in variate pair 1, it was only moderately correlated in variate pair 2, and in the opposite direction from both Perspective Taking and Empathic Concern. On the other side of the variate (set 2, variate 2) the Gender Continuum continued to be correlated \( r = .40 \), but this time in the opposite direction. Feminine personality characteristics no longer loaded sufficiently, but the reading appreciation factor, non-fiction reading, and time spent reading did. Reading Appreciation and amount of non-fiction reading loaded strongly, and time spent reading loaded moderately on the second variate pair. All three reading items and the Gender Continuum loaded positively with Perspective Taking and Empathic Concern but Emotional Reactivity loaded negatively. This suggested that Perspective Taking, Empathic Concern, Reading
Appreciation, amount of non-fiction reading and time spent reading all increased with greater masculinity, but Emotional Reactivity decreased. Taken together, the pattern of relationships between variates 1 and 2 demonstrated that levels of empathy increased with femininity, with Emotional Reactivity being the largest contributor of the three empathy factors. However, once the relationship between femininity and empathy was accounted for, increased Emotional Reactivity and femininity were correlated with decreased empathy, reading, and enjoyment of reading. Further, as masculinity, reading appreciation, non-fiction reading, and time spent reading increased, so did levels of Perspective Taking.

*Figure 5. Canonical Correlation and Loadings for Variate Pairs 1 and 2*
Chapter 5: Discussion

As earlier stated, the hypotheses were as follows: (a) higher levels of empathy would be correlated with female gender; (b) greater appreciation for reading and more reading behaviors (i.e. amount of reading and time spent reading) would be positively correlated with female gender; (c) higher levels of empathy would be correlated with greater appreciation for and amount of reading; (d) psychological gender would be more predictive than physical gender of empathy; and (e) psychological gender would be more predictive than physical gender of reading appreciation and reading behaviors. The canonical correlation results confirm the first hypotheses to an extent; greater femininity was related to higher levels of all three empathy dimensions (i.e. emotional reactivity, perspective taking, and empathic concern), except when considered along with the reading variables (see Figure 5). After the relationship between gender and the empathy variables was accounted for in the first variate pair, greater femininity in the second variate pair was only correlated positively with emotional reactivity, and empathic concern did not sufficiently load. Further, when the reading variables loaded, increased femininity correlated with decreases in perspective taking, as well as decreases in time spent reading, amount of non-fiction reading, and appreciation of reading. Thus, the current findings do not support the second hypothesis; on the contrary, not only was greater masculinity correlated with greater appreciation for reading, more non-fiction reading, and more time spent reading, masculinity also correlated with greater perspective taking, considering the reading variables. The reading variables were only correlated with higher levels of perspective taking, not empathic concern. Levels of emotional reactivity decreased with higher levels of the reading variables; thus, the third hypothesis met with mixed results. Further, although to a lesser degree, greater psychological masculinity was also found to be correlated with lower levels of empathy, except where reading is concerned.
The current findings confirm prior literature supporting higher empathy in females. Further, the relationships of Emotional Reactivity and Feminine Gender in the first variate pair serve to confirm previous research suggesting a stronger relationship between female gender and the emotional reactivity aspect of empathy than the either perspective taking or empathic concern (Andrew et al., 2008; Kobach & Weaver, 2012). More importantly, however, physical gender did not load sufficiently, suggesting psychological gender to be more predictive than physical gender of empathy, reading behaviors, and reading appreciation. This relationship confirmed the fourth and fifth hypotheses, emphasizing the importance of looking at the relationship not only of physical gender, but also of psychological gender to other variables under investigation. This is important, as it suggests that future studies could also benefit from considering psychological gender, rather than simply basing gender consideration on the physical sex of participants.

**Limitations**

The current study does have limitations. To begin with, it is a correlational study; thus, causation cannot be established from the current findings. Therefore, although it is possible that greater appreciation for and amount of reading may affect levels of empathy, it is equally possible that greater empathy may lead to greater appreciation for and amount of reading. Future studies would benefit from establishing the directionality of causation.

Sampling also created limitations in this study. Specifically, the sample comes from an academic population, creating a potential limited range situation. Future studies may benefit from examining how the relationships noted in the current study may differ in other populations. Further, although the sample shares many characteristics with the larger Ball State University population (students, faculty, and staff), the sample and the population also differ on a few
characteristics. Future studies may benefit from recruitment of a sample that is more representative of the population from which it is drawn.

Another limitation comes in the form of instrumentation. Rather than using the complete BSRI (S. L. Bem, 1974) and Empathy Quotient (Baron-Cohen & Wheelwright, 2004), the current study used abbreviated forms of these measures. Given the reliability values for the sample, the decision to use the abbreviated form of the gender measure may have been problematic, particularly for the masculine items from the Bem Sex Role Inventory (BSRI; S. L. Bem, 1974). From the BSRI, terms were drawn from it based on factor loadings and to minimize both redundancy and archaic terms as measures of masculinity and femininity, rather than using the complete masculine and feminine scales. The low reliability of the masculine personality items drawn from the BSRI may be a limitation (see Table 3), which may explain the lack of sufficient loading for the factor created from these items. Although the other gender measures used in the current study provide sufficient support for the expected gender relationships, future studies may benefit from investigation of improved reliability, at least through consideration of other terms purported to measure masculinity if not through use of the full BSRI.

A final limitation is that the current study focused on fiction and non-fiction reading, irrespective of content. The relationship between non-fiction reading and higher levels of empathic concern and perspective taking may be better understood through investigation of differences in these components of empathy, based on the content of non-fiction reading. For example, although both biographies and diet books are non-fiction, biographies would be much more likely to be related to empathy. Future studies may benefit from determination of which types of non-fiction reading show greater correlation with empathy.
Implications

The current findings have several implications. Among these are support for empathy as multidimensional rather than a unidimensional construct. By themselves, the correlations among the empathy subscales might indicate a unidimensional construct, but the change in relationship of Emotional Reactivity accompanying inclusion of the reading variables suggested that, although related, each empathy component still functioned somewhat independently of the others. Further, the current findings confirmed the relationship between gender and empathy; that is, those who were higher in femininity demonstrated greater levels of empathy. Of primary importance, however, is that it did so with respect to psychological gender, rather than the biological gender, or sex of an individual. Whereas sex is based on a dichotomous relationship between male and female, gender exists on a continuum (Favreau, 1997; Freeman & Knowles, 2012). The stronger relationship between psychological gender and both the reading and empathy variables goes beyond suggesting psychological gender as more representative of gender differences than physical gender; it supports the notion of gender based on sex is a false dichotomy. The psychological conception of gender is more malleable than is physical gender; in other words, increases in both reading and empathy may be affected by changing an individual’s conception of what it means to be a man.

This offers reading as an additional means by which programs focused on improving empathy can affect positive changes in their clients. Currently, such programs focus on reduction of bullying and other aggressive behaviors, for instance, using modeling of prosocial behaviors (Rolheiser & Wallace, 2005), practicing application of empathy in imaginative play, or storytelling (Laouri, 2015). Using reading, such programs can affect positive changes in their clients’ social skills while improving their literacy as well.
Key among the findings of the current study is the relationship of the reading variables and perspective taking to greater masculinity. This not only supports the utility of psychological gender in practically any study investigating gender differences, but it also informs and discredits sex stereotypes. Females have been characterized as reading more and getting greater enjoyment from reading (Organization for Economic Co-operation and Development, 2011), offering not only a possible explanation for the gender gap in reading achievement in favor of females, but also underscoring the importance of an individual’s attitude toward reading (Mosenthal et al., 2004). However, this gap was in a sample with an average age of 15; the sample in the current study were at least 18, with 63% of the sample being between the ages of 18 and 25. Thus, at least for the college population, the relationship between reading behaviors, reading appreciation, and gender, differs from the wider population. This not only speaks to the stereotype that real men don’t read, it also speaks against the stereotypical belief than real men should be less empathetic because of their sex; breaking down these gender stereotypes can facilitate both reading behaviors and empathy development in men. Real men can read. Real men can care.

Previous literature suggested reading fiction with an emotional component facilitated greater empathy. Although the current findings do not necessarily controvert such a role, neither do they directly support it. Finding that reading appreciation and time spent reading are correlated with higher levels of perspective taking lends indirect support, as does the lack of a relationship between fiction reading per se and levels of empathy. Finding that neither amount of fiction reading nor empathic concern (affective empathy) loaded sufficiently in the second variate pair does not indicate anything specifically about the relationship between written works with an emotional component and levels of empathy. However, finding that amount of non-fiction reading is correlated with higher levels of perspective taking (cognitive empathy) in the
absence of investigation of an emotional component to what is read suggests a different mechanism may be at work. One could argue that the reason fiction reading did not sufficiently load is because some fiction reading does not have the emotional component touted in previous research as affecting increased empathy, but what does that say about the existence of significant relationships between time spent reading, amount of non-fiction reading, and levels of cognitive empathy, regardless of emotional content? In the absence of a relationship between fiction and empathy, one might conclude that it may be non-fiction narratives, (e.g. biographies, ethnographies) that affect greater empathy, in that these forms of writing lend themselves to the inclusion of emotional content. However, the current study findings only support a role for non-fiction reading in general, rather than any specific form of non-fiction reading. The implication is perhaps it is not identification with a particular emotional state that drives understanding other perspectives, so much as it is exposure to differing perspectives and information.

A mechanism that could explain this finding was suggested by Kintsch (2009), among others, who noted that good readers are better at understanding the meaning, not only of what is said in a written work, but also of that which is not said. Perhaps practice in discerning meaning from both the written work and gaps in presented information improves the reader’s empathy. Those better at using both what is written and what is absent from written work to understand the author’s meaning may have greater empathy due to practice, but it could just as easily be the case that those with greater empathy make better readers; higher levels of empathy may make reading easier to understand, and thus more enjoyable for the reader.

Finding that psychological masculinity was correlated with greater levels of reading behaviors, greater appreciation of reading, and more perspective taking might suggest a role for these factors in promoting the development of empathy, but it might also mean that empathy lead
to greater appreciation of reading. Ford, Boxer, Armstrong, and Edel (2008) suggested that it may be the former, noting that the context of prejudicial remarks about women differentially affects perspective taking and attitudes toward women (e.g., as with men and sexist humor). Dovidio et al. (2004) similarly found a reduction in feelings of prejudice in White Americans toward African Americans when reading about terrorist acts against all Americans.

Understanding the mental state of cultural outgroups (Dovidio et al., 2004) and increased compassion afforded through aspects of empathy (Hunsinger, Livingston, & Isbell, 2014; Nicol & Rounding, 2013; Stephan & Finlay, 1999) have been shown to reduce prejudice and discrimination towards those groups, including even between members of different stigmatized outgroups (Shapiro & Neuberg, 2008). Affective Empathy and moral reasoning have a negative relationship with levels of prejudice (McFarland, 2010) and a positive relationship between perspective-taking and reduction of prejudice against members of the LGBT community (Lindsey, King, Hebl, & Levine, 2015) as well as affecting positive attitudes toward other outgroups (Shih, Wang, Bucher, & Stotzer, 2009). Johnson, Jasper, Griffin, and Huffman (2013) even noted a reduction in prejudice against Arab-Muslims when participants (particularly those low in perspective taking abilities) read narrative fiction. In other words, not only can reading affect increases in perspective taking, it can do so in individuals whose perspective taking abilities are lacking.

Empathy can help change the world. Higher levels of female traits, such as gentleness, compassion, sensitivity, being affectionate and understanding are correlated with greater empathy. However, Bloom decries empathy as problematic in the sense that it may be limited in expression only to those similar to us, or to empathize with some at the expense of others. Some have played on the empathy of others, using it to highlight the experiences of one individual as a
reason to act against the interests of another. President Trump highlighted the murder by an illegal immigrant of a woman in San Francisco to garner support for his desire to build a wall between Mexico and the United States (Rosefield, 2017). Perhaps cases such as this explain the current finding that increased emotional reactivity is related to decreases in perspective taking. Thus, efforts should be made to apply empathy “beyond those who look like you and act like you and live in your neighborhood…” (Obama, 2006a), to understand the plight of others, “whether they are close friends or distant strangers” (Obama, 2006b).

Deficits in literacy and empathy handicap an individual. Skills in both afford the bearer access to opportunities unavailable to those without said abilities. Not only are those with higher levels of empathy less likely to participate in bullying (Caravita, Di Blasio, & Salmivalli, 2009), adolescents higher in empathy are more likely to help the victims of bullying (Jolliffe & Farrington, 2006). The current findings support the idea of books and reading as a vehicle to understanding and sharing the feelings of others, as well as improving literacy. More reading of non-fiction and greater appreciation for reading are associated with greater perspective taking, particularly in males. The notion that empathy increases appreciation and amount of reading is also supported; at the same time, finding that emotional reactivity is negatively related to reading appreciation, amount of non-fiction reading and time spent reading suggests that emotional reactivity gets in the way of perspective taking and understanding when it comes to reading. Consider the posts made to public media, posting life stories of Muslims, other oppressed people in hopes of changing another’s mind, knowing those most in need of understanding will likely not even read the posts. This is where reading as a vehicle to improving empathy may be limited by failure to get important information and stories read by those who need to read them most. As is suggested by the relationship noted between perspective taking, and amount and appreciation
of reading, it may be possible to hone skills in perspective taking through reading various texts, but what if the person never reads those relative to an opinion they hold that needs changed? What of readers who only read texts that confirm their existing beliefs? How do we get people to look past their own fears (e.g., that Syrian refugees might be terrorists) and emotions (e.g., anger upon encountering information that disagrees with what they “know”) to see those in need of help, rather than seeing them as prospective enemies? How do we do this and still maintain a sense of wariness when such is related to a valid concern? This is the work that lies ahead of us.

Conclusion

The social implications of a positive relationship between appreciation of reading and aspects of empathy are numerous, as are those relative to finding personality characteristics associated with female gender to be predictive of empathy. Finding a positive relationship between empathy and engagement in and appreciation of reading has several social implications. Early prosocial behaviors positively impact social connectedness in adolescence (Olsson et al., 2013), academic achievement later in life (Caprara et al., 2000), and well-being across the lifespan (Olsson et al., 2013). As mentioned earlier, parents are primary models affecting a child’s abilities in empathy, but educators can fill this role as well (Broomhead, 2013; Mahmoudi & Moshayedi, 2012). Educators play a role in promoting both academic achievement and prosocial behaviors (Selman & Russell Sage, 2003). The results of the current study offer support in this regard, not only suggesting reading as a means by which educators can promote both, but also suggesting drawing on students’ empathy may promote increases in appreciation for reading, amount of reading, and time spent reading. Together, these findings suggest a promising outcome for future studies exploring interventions targeted at reducing prejudice, intolerance, and discrimination against members of social outgroups.
The current study investigated the relationship among factors of time spent reading, appreciation of reading, and aspects of empathy, and found that Perspective Taking (cognitive empathy) was positively correlated with amount of non-fiction reading and time spent reading for enjoyment, and reading appreciation. It also investigated how this relationship differs based on consideration of both physical and psychological gender and found a greater relationship of psychological gender, both to aspects of empathy, and to reading behaviors and appreciation of reading. Further, though much of the literature supports a relationship among these constructs, there are dissenters. As such, the current study adds additional support to the existence of the aforementioned relationships.
References


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APPENDIX A: Instrument: Gender, Empathy, and Reading (GEaR)

**Books**

About how many of each did you read **for pleasure** during the last 12 months?

- _____ non-fiction book(s)
- _____ fiction book(s) (novel)

About how much time each day do you read for enjoyment?

- _____ I don’t read for enjoyment
- _____ 30 minutes or less
- _____ Between 30 and 60 minutes
- _____ 1 to 2 hours a day
- _____ More than 2 hours a day

**About Reading**

1. I only read if I have to
   - Strongly Disagree
   - Disagree
   - Agree
   - Strongly Agree

2. Reading is one of my favorite activities.
   - Strongly Disagree
   - Disagree
   - Agree
   - Strongly Agree

3. I like talking about books with other people.
   - Strongly Disagree
   - Disagree
   - Agree
   - Strongly Agree

4. I find it hard to finish books.
   - Strongly Disagree
   - Disagree
   - Agree
   - Strongly Agree

5. I feel happy if I receive a book as a present.
   - Strongly Disagree
   - Disagree
   - Agree
   - Strongly Agree

6. For me, reading is a waste of time.
   - Strongly Disagree
   - Disagree
   - Agree
   - Strongly Agree

7. I read only to get information that I need.
   - Strongly Disagree
   - Disagree
   - Agree
   - Strongly Agree

8. I cannot sit still and read for more than a few minutes.
   - Strongly Disagree
   - Disagree
   - Agree
   - Strongly Agree
9. When I read, I sometimes get totally absorbed.  
   Strongly Disagree  Disagree  Agree  Strongly Agree

10. I am a poor reader.  
    Strongly Disagree  Disagree  Agree  Strongly Agree

About You

Emotional Reactivity
1. I tend to get emotionally involved with a friend’s problems  
   Strongly Disagree  Disagree  Agree  Strongly Agree

2. Seeing people cry really upsets me  
   Strongly Disagree  Disagree  Agree  Strongly Agree

3. I enjoy caring for other people  
   Strongly Disagree  Disagree  Agree  Strongly Agree

4. I usually stay emotionally detached when watching a movie  
   Strongly Disagree  Disagree  Agree  Strongly Agree

5. If I say something that others are offended by, I think that is their problem, not mine.  
   Strongly Disagree  Disagree  Agree  Strongly Agree

Perspective Taking
6. I sometimes find it difficult to see things from the other person’s point of view. (·)  
   Strongly Disagree  Disagree  Agree  Strongly Agree

7. I try to look at everybody's side of a disagreement before I make a decision.  
   Strongly Disagree  Disagree  Agree  Strongly Agree

8. I sometimes try to understand people better by imagining how things look from their perspective.  
   Strongly Disagree  Disagree  Agree  Strongly Agree

9. If I’m sure I’m right about something, I don't waste much time listening to other people’s arguments. (·)  
   Strongly Disagree  Disagree  Agree  Strongly Agree

10. When I’m upset by someone, I usually try to put myself in their shoes.  
    Strongly Disagree  Disagree  Agree  Strongly Agree
Empathic Concern

11. I am very sympathetic toward people less fortunate than me.
   Strongly Disagree    Disagree    Agree    Strongly Agree

12. I usually feel very sorry for other people when they are having problems. (-)
   Strongly Disagree    Disagree    Agree    Strongly Agree

13. When I see someone being taken advantage of, I feel kind of protective towards them.
   Strongly Disagree    Disagree    Agree    Strongly Agree

14. Other people’s misfortunes disturb me a great deal.
   Strongly Disagree    Disagree    Agree    Strongly Agree

15. When I see someone being treated unfairly, I feel a great deal of pity for them.
   Strongly Disagree    Disagree    Agree    Strongly Agree

Personality

For the following, how well does each describe you?

a. Independent: Very Unlike Me    Unlike Me    Neutral    Like Me Very    Like Me
b. Affectionate: Very Unlike Me    Unlike Me    Neutral    Like Me Very    Like Me
c. Strong: Very Unlike Me    Unlike Me    Neutral    Like Me Very    Like Me
d. Analytical: Very Unlike Me    Unlike Me    Neutral    Like Me Very    Like Me
e. Sensitive: Very Unlike Me    Unlike Me    Neutral    Like Me Very    Like Me
f. Understanding: Very Unlike Me    Unlike Me    Neutral    Like Me Very    Like Me
g. Compassionate: Very Unlike Me    Unlike Me    Neutral    Like Me Very    Like Me
h. Aggressive: Very Unlike Me    Unlike Me    Neutral    Like Me Very    Like Me
i. Competitive: Very Unlike Me    Unlike Me    Neutral    Like Me Very    Like Me
j. Gentle: Very Unlike Me    Unlike Me    Neutral    Like Me Very    Like Me

Regardless of your physical sex, where do you see your personality regarding gender?

Very Masculine    Masculine    Equally Both    More Feminine    Very Feminine
APPENDIX B: Informed Consent

Informed Consent

**Study Title**  Reading and Personality Survey

**Study Purpose and Rationale**

The purpose of this study is to understand the relationship of reading ability and enjoyment of reading with personality factors of empathy and gender.

**Inclusion/Exclusion Criteria**

Participants will be students at Ball State University, 18 years and over, participating in the EDPSY Research pool.

**Participation Procedures and Duration**

For this project, participants will be asked to respond to items regarding your enjoyment of reading as well as three comprehension questions over a brief reading passage (15 items). In addition, participants will be asked to respond to items regarding empathy and gender identification (26). Seven demographic items are also included. It will take approximately 30 minutes to complete the questionnaire through the Ball State University Qualtrics site.

**Data Confidentiality or Anonymity**

Those managing the subject pool maintain a list of participants, but not associated with their responses. All analyzed data will be maintained as anonymous with no names associated with responses, and no identifying information, such as names will appear in any publication or presentation of the data.

**Storage of Data**

There will be no hard copy of the data. Responses will be entered using Qualtrics online, and exported data for analysis will not include any identifying information. The anonymous data will be stored on the researchers’ password-protected computer for three years and then deleted. Only members of the research team will have access to the data.

**Risks or Discomforts**

There are no anticipated risks or discomforts associated with this survey. Participants may choose not to answer most items and may quit the study at any time.

**Benefits**

Participants may benefit from reflecting on the items in the survey.

**Compensation**

Participants are in classes involved in the EDPSY Research pool; each instructor assigns credit in different ways as students have different options for completing research activities. Participants will receive “one” credit (equivalent to one hour of participation).
Voluntary Participation

Participation in this study is completely voluntary, and you are free to withdraw at anytime for any reason without penalty or prejudice. Please feel free to ask any questions of the investigators at any time during the study.

IRB Contact Information

For one’s rights as a research subject, you may contact the following: For questions about your rights as a research subject, please contact the Director, Office of Research Integrity, Ball State University, Muncie, IN 47306, (765) 285-5070 or at irb@bsu.edu.

Consent

By proceeding and responding to the survey items you agree to participate in this research project entitled, “Reading and Personality Survey.” Furthermore, you agree that you have read the description of this project, and give consent to participate. This informed consent form is available here for download and printing. Should you request it, you will receive a copy of this informed consent form to keep for future reference.

Researcher Contact Information       January 8, 2015

Principal Investigator:           Faculty Supervisor:
John J. McCreary, Graduate Student  Gregory Marchant, Ph.D.
Educational Psychology           Educational Psychology
Ball State University             Ball State University
Muncie, IN  47306                 Muncie, IN  47306
Telephone: (765) 285-8500          Telephone: (765) 285-8500
Email: jjmcreary@bsu.edu          Email: gmarshal@bsu.edu
APPENDIX C: Institutional Review Board: Human Subjects Protocol Approval

Office of Research Integrity
Institutional Review Board (IRB)
2000 University Avenue
Muncie, IN 47306-0155
Phone: 765-285-5070
DATE: February 19, 2015
TO: John McCreary, BS, MA
FROM: Ball State University IRB
RE: IRB protocol # 701725-2
TITLE: Reading and Personality Survey
SUBMISSION TYPE: Amendment/Modification
ACTION: APPROVED
DECISION DATE: February 19, 2015
REVIEW TYPE: EXEMPT

The Institutional Review Board reviewed your protocol on February 19, 2015 and has determined the procedures you have proposed are appropriate for exemption under the federal regulations. As such, there will be no further review of your protocol, and you are cleared to proceed with the procedures outlined in your protocol. As an exempt study, there is no requirement for continuing review. Your protocol will remain on file with the IRB as a matter of record.

Exempt Categories:

Category 1: Research conducted in established or commonly accepted educational settings, involving normal educations practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

Category 2: Research involving the use of educational test (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior.

Category 3: Research involving the use of educational test (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under category 2, if: (i) the human subjects are elected or appointed officials or candidates for public office; or (ii) Federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

Category 4: Research involving the collection of study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Category 5: Research and demonstration projects which are conducted by or subject to the approval of Department or agency heads, and which are designed to study, evaluate or otherwise examine: (i) public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in methods or levels of payment for benefits or services under these programs.

Category 6: Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed which contains
a food ingredient at or below the level and for a use found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

Editorial Notes:
1. Modification Approved
While your project does not require continuing review, it is the responsibility of the P.I. (and, if applicable, faculty supervisor) to inform the IRB if the procedures presented in this protocol are to be modified or if problems related to human research participants arise in connection with this project. **Any procedural modifications must be evaluated by the IRB before being implemented, as some modifications may change the review status of this project.** Please contact (ORI Staff) if you are unsure whether your proposed modification requires review or have any questions. Proposed modifications should be addressed in writing and submitted electronically to the IRB (http://www.bsu.edu/irb) for review. Please reference the above IRB protocol number in any communication to the IRB regarding this project.

**Reminder:** Even though your study is exempt from the relevant federal regulations of the Common Rule (45 CFR 46, subpart A), you and your research team are not exempt from ethical research practices and should therefore employ all protections for your participants and their data which are appropriate to your project.

Bryan Byers, PhD/Chair
Institutional Review Board
Christopher Mangelli, JD, MS, MEd, CIP/Director
Office of Research Integrity