ADOLESCENT GIRLS' MORAL LANGUAGE USE IN RELATIONAL AGGRESSION SITUATIONS

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This research on relational aggression among early adolescent girls in school settings investigated the role of language production in moral judgments. I examined whether adolescent girls' use of language to discuss these moral conflicts reflected intuition or rationality, and whether this relationship changed over three years of their development.

Literatures in linguistics, moral development and psychology have never utilized language to help identify the use of intuitive and rational processes in moral decision-making. Building from several literatures and the dual processing theories of reasoning, I developed a new methodology for analyzing adolescent girls' use of intuitive and rational language in discussing moral conflicts and dilemmas surrounding relational aggression.

The data was derived from interviews with 15 girls in grades five, six, and seven in their schools from Schrader's (2006-2009) Adolescent Girls Relational Aggression Longitudinal Study. I analyzed data from a relational aggression interview, Moral Judgment Interview (Kohlberg, 1981), Real Life Dilemma Interview, and Metacognitive Interview (Schrader, 1988), which had been administered as part of Schrader's study. The LIWC text analysis program (Pennebaker, Booth, & Francis, 2001) supplemented by a Dual Processing Theoretical Framework and qualitative semantic analyses generated what I refer to as "the Moral Language

Use Evaluation Tool" to evaluate intuitive and rational properties of the girls' language. Significant differences were hypothesized to exist in the lexical, syntactic productivity, semantic, and general performance language indicators, reflecting differences in the use of intuitive and rational language in discussing moral judgments.

Both quantitative and qualitative content analysis revealed that, as hypothesized, adolescent girls measurably shifted from more intuitive to more rational descriptions of their moral judgment processes between the fifth and seventh grades, and used more intuitive language in discussing real than hypothetical scenarios. A qualitative content analysis of the girls' moral justifications indicated that girls discussing their role-playing as bystanders provided more rational justifications and fewer intuitive justifications than when they discussed a hypothetical scenario. These results provide initial evidence for the value of applying the new moral language methodology to better understand the process by which girls use language in relational aggression conflicts.

BIOGRAPHICAL SKETCH

Christiane Gouveia is currently an Adjunct Assistant Professor in the Department of Psychology at Hunter College (CUNY) in New York. She earned a Master of Science from Cornell University in 2008 and a Master of Arts in Developmental Psychology from Teachers College, Columbia University in 2005.

Throughout her academic career, Christiane Gouveia's research focused on the interplay of rational and intuitive processes in moral and linguistic development. Her work also emphasized the role of affective variables and intuition in school learning and academic achievement.

Always maintaining an interest in applying her work on language and moral development, Christiane Gouveia has extensive consulting experience working for such major clients such as Scholastic Education, where she managed research literacy projects in the areas of whole school reform. Prior to her appointment at Hunter College, Christiane Gouveia served as an Assistant Director at Columbia University Head Start overseeing the provision of education, child development, and health services to 66 preschool children and their families.

Christiane Gouveia travels and lectures extensively, delivering presentations at major national and international conferences, including meetings sponsored by the University of Barcelona in Spain and the University of Athens in Greece.

Christiane Gouveia is a member of the American Psychological Association (Division 15), the Association for Moral Education, and the Society for Research in Child Development.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

GRLS	Girls Relational-Aggression Longitudinal Study (GRLS)
RAI	Relational Aggression Interview
MJI	Moral Judgment Interview
RLI	Real Life Interview
LIWC	Linguistic Word Count
MLUET	Moral Language Use Evaluation Tool

Chapter 1: Introduction

1.1 Background of the Problem

Female adolescent bullies, victims, and bystanders experience devastating consequences and negative outcomes from verbal or psychological attacks, as exemplified by the prevalence of social-psychological maladjustment problems (e.g. social anxiety, depression, and delinquency) that frequently accompany experiences of relational aggression (Crick & Grotpeter, 1995). A recent and well known example occurred on January 14, 2010 when Phoebe Prince, a 15 year-old living in South Hadley, Massachusetts who had recently emigrated from Ireland, committed suicide after being subjected to nearly three months of verbal and electronic attacks by six female students. Phoebe endured threats of physical harm, abusive taunts, stalking, name-calling, and exclusion in-person at school, and after school through text messages and the social networking sites, Twitter and Facebook. The girls followed Phoebe around, subjecting her to verbal harassment, calling her names such as 'Irish slut' and 'whore' (Bennett, 2010; Szaniszlo & Crimaldi, 2010).

This behavior is usually referred to as relational aggression, defined as non-physical aggression where the goal is to inflict harm on others through deliberate manipulation or damage through social relationships (Crick, 1996; Crick and Grotpeter, 1995; Underwood, Galen, & Paquette, 2001). Relational aggression can be manifested either as direct aggression that is easily observed and confrontational (e.g., name-calling, taunting, threats), or as surreptitious and less confrontational indirect aggression (e.g. ignoring, exclusion, gossip) (Archer, 2001; Smith, Rose, & Schwartz-Mette, 2010; Leff, Waasdorp & Crick, 2010). Relational aggression can also be nonverbal, but many relationally aggressive strategies rely on verbal expression through teasing, cruel jokes, and rumors (Bonica, Yershova, Arnold, Fisher

& Zeljo, 2003).

Relational aggression has become a significant issue in most schools, particularly for female students in elementary and middle school (Nishioka, Coe, Burke, Hanita, & Sprague, 2011). In a study on relational aggression of over 11,000 students in rural and urban schools in grades 3-8, Nishioka, Coe, Burke, Hanita, & Sprague (2011) found more than almost half of girls (41.4-48.1%) and one-third of boys (31-42%) in grades 3–8 reported victimization of relational aggression at least once during a month-long period. Boys and girls reported being lied about so others would dislike them as the most common type of relational victimization (Nishioka, Coe, Burke, Hanita, & Sprague, 2011).

Adolescent girls face many challenges in the context of school due to the processing and interpretation of their everyday experiences of moral conflicts. Relational aggression is a commonly confronted problem for adolescent girls, and often triggers extensive reflection and verbal exchange amongst bullies, victims, and bystanders. Language is an important factor in group identification, conflict, and solidarity (Trudgill, 1974) as linguistic, extralinguistic, and paralinguistic dimensions of communication transmit moral information between girls. Female conversations are often structured around verbal expressions indicating control, responsibility, emotionality, and rationality (Eckert, 2003). For example, adolescents frequently use language as a means of rationalizing their decisions to conceal what they are thinking or feeling (Coloroso, 2003). These verbal expressions are used to label and communicate categories that impose structure on moral concepts. In fact, the emotions, intuitions, and thoughts that adolescents express in response to aggressive situations are often conveyed through the manipulation of single words. The linguistic choices girls make in handling conflicts can convey moral meaning through their use of syntax, lexicon, semantic, and general processing.

Moral meanings transmitted through pronouns, filler words, affective words, and other language indicators could contain a wealth of information about how girls construct their understanding of morality, including information about the semantic or lexical makeup of an utterance, and the girl's emotional state or cognitive processes.

1.2 Statement of the Problem

Despite the increasing attention that relational aggression has received in recent years (e.g. Leff, Waasdorp, & Crick, 2010; Nishioka et al., 2011), the language that adolescent females use in relational aggression situations has remained understudied by scholars in the fields of psychology, education, and sociolinguistics. There is scarcely a literature on adolescent girls' language use and relational aggression, the exceptions being a few qualitative studies that analyzed language data through ethnographic methods (e.g. Goodwin, 2002). Most researchers have examined participants' language data for evidence of their moral or cognitive processes without utilizing the formal properties or functions of language production. Another literature has explored the relationship between language and moral judgment through the work on Moral Grammar (e.g. Hauser, 2006; Dupoux and Jacob, 2010), but only the generative properties of language are utilized. Research in adolescent language has not yet examined a broad range of semantic, syntactic, general performance issues.

No research has addressed the interaction between moral judgment and language to distinguish what constitutes a reflective, rational judgment from an emotional, intuitive judgment in solving moral conflicts. Dual processing models have begun to identify conditions and problems that are more likely to generate or require rapid, intuitive thinking, or more deliberate and conscious processes of reasoning. However, neither the dual processing literature nor sociolinguistics have systematically studied the language terms and uses

associated with these processes to determine which is used in different experiences of relational aggression. Dual processing models of cognition still need methodologies that could be adapted to studying the relationships between moral judgment and language use.

These are large and important issues which, to date, have few answers. The study of language use can help to resolve this ambiguity in the literature by providing a means for distinguishing intuitive from rational language. To fill in this missing gap, a close examination of the formal aspects of language production in situations of moral conflict is required.

Adolescent girls' verbal responses to relational aggression conflicts provide an especially advantageous opportunity for exploring the use of language in moral judgment. How females construct language could play a fundamental role in their moral choices and help us measure how they use intuition and rationality make these choices. A more consistent and developed understanding of the roles of intuition and rational moral language, and their interplay in situations of relational aggression, calls for an integrated view of the domains of language.

1.3 Research Questions

The questions addressed in this analysis are, what is the nature of adolescent girls' language use in their discussions of moral and relational aggression situations, particularly in regard to intuitive and rational thinking, and does that language use change in its expression from fifth through seventh grades. I examine these questions by exploring the language used by a sample of 15 adolescent girls in hypothetical and real-life situations of relational aggression and moral conflict from the Girls Relational Aggression Longitudinal Study (GRLS) (Schrader, 2006-2009). Grounding this work in a 'dual processing framework of morality' (e.g. Evans, 2003; Osman, 2004), I propose a system for analyzing the language

production found in adolescent girls' discussions of moral conflicts, primarily involving relational aggression. Building upon the LIWC analytic tool (Pennebaker, Booth, & Francis, 2007) and suggestions emerging in the sociolinguistic, education, and moral psychology literatures, I propose a set of lexical, syntactic, semantic, and general processing language production categories that one would expect to be associated with 'intuitive' uses of language and a contrasting 'rational' set on each of these language dimensions.

1.4 Summary

In sum, then, this present research seeks to build upon and extend the current work examining adolescents' language and morality (e.g. Eckert, 2003). Operationalization of language production measures will be useful for the future characterization and evaluation of moral reasoning. This undertaking has broad importance because the literature on the relationship between language use and morality is largely undeveloped, and understandings of relational aggression have yet to be built in the study of moral and language development. Establishing a stronger relationship between these two topics will help lay the groundwork for being able to evaluate whether girls' use of language correlates with their moral judgments. Combining the dual processing approach and a proposed moral language use methodology can provide an initial framework for studying moral decision-making and some of its developmental trajectories in adolescent girls. This study can provide a foundation for future studies to determine how representations of language play a constitutive role within System 1 and 2 processing, and whether language might shape one's moral thinking, or merely reflects the moral decision-making of the individual. Language does not map perfectly onto our experience of reality or correspond to a distinct internal mental state or experience.

To understand more about the language used by adolescent girls in various contexts of relational aggression and moral conflict, I begin by reviewing the role of intuition and rationality in girls' discussions of moral judgments. Next, I discuss literature that is relevant to understanding adolescent girls' relational aggression, language use, and morality. My review of theoretical works focuses on summarizing and integrating theories, models, and empirical studies that have emerged from research in these areas from the psychology, education, and sociolinguistic literatures. The methods for data collection and the present analysis of the data are presented in Chapter 3. I then take a dual process theory approach to suggest a new method to analyze female adolescents' accounts of aggression events, and better understand the language they use when they are confronted with relational aggression. The study examines age-related changes in language production, measured in terms of lexicon (e.g. conjunctions), semantics (e.g. use of justifications) syntax (e.g. mean length of words), and general processing (e.g. filler words). After reviewing the results of the study in Chapter 4, I turn in the final chapter to discuss the findings and implications for future research.

Chapter 2: Review of the Literature

This chapter reviews three literatures from linguistics, neuroscience, psychology, and education that inform the current study: the research on intuition and rational moral reasoning, moral judgment and language, and relational aggression and language. First, the different definitions of rationality and intuition are reviewed and discussed along with measurement issues, leading to a conclusion that both processes should be operationalized based on dual process models. The next section critically evaluates the current state of scientific knowledge concerning female adolescent language, and examines how language is linked to moral judgments. Finally, a few studies are discussed that outline, in considerable detail, how language is situated in contexts of relational aggression.

2.1 Intuition and Rationality in Moral Judgment

2.1.1 The Role of Rationality in Moral Judgment

Cognitive developmentalists (e.g. Kohlberg, 1969; Piaget, 1932; Turiel, 1998; Rest, 1986) have focused their attention on the how moral reasoning develops through children's active exploration of the environment, formal reasoning, and abstract thought. Kohlberg (1969) and Piaget (1932) have proposed that how people make moral judgments is governed by their developing understanding of justice and reciprocity. Piaget and Kohlberg have found that as children mature and interact more frequently with peers, their moral orientation changes from a 'morality of constraint' to a more egalitarian morality of cooperation and instrumental exchange (Krebs & Janicki, 2004).

According to Piaget, development occurs through cognitive reorganization, resulting in an increasingly powerful logical, formal operational system (Inhelder & Piaget, 1958; Lapsley, 1996). To investigate moral development, Piaget (1932) observed children playing games such

as marbles, and then interviewed them using short scenarios involving moral issues such as lying, obedience, responsibility, and punishment. Piaget emphasized that children share common developmental characteristics and moral trajectories. Specifically, Piaget (1932) argued that the young children tend to conceptualize morality through internalization of the moral rules conveyed by parents and other authorities. This is followed by increasing autonomy from those rules in late childhood and adolescence as older children more frequently engage in egalitarian peer interactions, in which they negotiate and reconstruct moral rules (Krebs & Janicki, 2004; Jensen, 2008).

Moral Justice (Kohlberg) and Moral Caring (Gilligan) Frameworks

Kohlberg (1971, 1981, 1984), influenced by Piaget, explained the development of moral reasoning in terms of the acquisition of justice, duties, and welfare as well as preventing violation of rules and principles for resolving competing moral claims. Narvaez & Lapsley (2005) recounted how Kohlberg defined morality to which he asserts, "in the absence of explicit judgments, in the absence of rational deliberation, there can be no distinctly moral phenomena in the first place" (Narvaez & Lapsley, 2005, p. 141). Thus, Kohlberg (1981) says, "moral principles reduce all moral obligations to the interests and claims of concrete individuals in concrete situations. It is clear that only principles of justice have an ultimate claim to being adequate, universal, prescriptive principles" (p. 175).

Kohlberg (1971, 1981, 1984) extended Piaget's ideas by formulating a prescriptive theory for conceptualizing and measuring moral development as a form of rational cognitive development. Kohlberg argued that moral development – defined, specifically, as thinking and reasoning about justice and fairness – proceeds through six stages that mark distinct changes in the underlying structure of moral thought. Developmental stages represent structured wholes

that develop in an invariant sequence, with old ones displaced and transformed by new stages that provide better cognitive tools for grasping moral problems. Kohlberg described this sequence of qualitative reorganizations as a developmental progression from pre-conventional to conventional and then post-conventional levels of moral judgment. Kohlberg's six stages of moral development trace this three-level progression from an egocentric understanding of fairness based on individual need (stages one and two), to a conception of fairness anchored in the shared conventions of societal agreement (stages three and four), and finally to a principled understanding of fairness that rests on the free-standing logic of equality and reciprocity (stages five and six). His six stages portray forms of moral reasoning, not the content of moral convictions. As these patterns of thinking develop, they become more complex, differentiated, and adaptive (Colby & Kohlberg, 1987).

Kohlberg considered the child to be a 'naïve philosopher,' whose thinking develops with experience towards greater philosophical and psychological sophistication (Kohlberg, 1981, 1984). The higher the child's stage of moral development, the better able he or she is to make moral judgments that accommodate and balance others' perspectives impartially (Krebs & Denton, 2005). Individuals who reach stage six are able to justify moral decisions on the basis of a central Kantian principle: individuals must be treated as ends and never merely as means. His highest moral stage entails individuals assuming the "veil of ignorance," an ideal reciprocal role-taking stance that "involves temporarily separating the actual identities of persons from their claims and interests in order to assess the relative merits of those claims and interests from the point of view of any person implicated in the dilemma" (Kohlberg, Boyd, & Levine, 1990, p. 167).

Gilligan (1982) questioned the generalizability of Piaget and Kohlberg's previous studies, arguing that the ethic of justice was an inadequate explanation females' moral reasoning. She noted that Piaget's and Kohlberg's research had a masculine bias with its emphasis on autonomy, rights, and duty. Gilligan (1982) claimed that women are more likely to score lower than boys on Kohlberg's stages because Kohlberg's stage sequence relegated women's moral reasoning to a lower level of moral development (Puka, 1994).

Gilligan (1982, 1988) argued that there is a second orientation, a "care" aspect of morality in which the focus is on conflicts in relationships and on one's self in relation to others. Gilligan (1988) describes the languages of justice and care metaphorically as different kinds of "moral voices" or "moral orientations", representing alternative views of what constitutes a moral dilemma, and how one resolves a moral problem. Voice is described as being relational "in language," connecting "psyche and body". Gilligan (1988) acknowledged that men and women both use care considerations when resolving a moral problem, but did introduce a developmental progression representative of female morality based on the ethic of care. Development would entail successive levels: 1.) care for the self to the exclusion of others, 2.) seeking to ensure care for others, 3.) balanced caring for both self and others focusing on the dynamics of relationships and connection between self and other.

Domain Specificity: Emphasizing Distinctions in Judgments

Important research conducted by Piaget, Kohlberg, and Gilligan has demonstrated that young children make moral judgments about harm, welfare, justice, and rights. However, domain theorists (Nucci, 2001; Turiel, 1983) challenged and expanded these ideas by arguing that children conceptualize the world in moral, social-conventional, and personal domains (Nucci, 2001). The domains differ on the criteria, reasoning, and issues involved in judgments.

Moral justifications are reasoned using principles of justice, fairness, avoiding harm, and protecting rights. In contrast, social-conventional justifications are dependent upon rules, authority, and the coordination of social interactions. The criteria for social-conventional and personal rules apply only to one's group or oneself, while moral rules are broadly or universally applicable. Most children and adults generally judge moral transgressions to be more serious than conventional transgressions (Nucci, 2001).

2.1.2 The Role of Intuition in Moral Judgments

Research on intuition was mostly dormant for the much of the mid-20th century due to the focus on rational processes, probably due the dominance of Piaget's theories of cognitive development (Piaget, 1932) and Kohlberg's (1971, 1981, 1984) moral development theories. Researchers in the field of psychology have been historically reluctant to acknowledge intuition as a viable construct, associating it with mystic or paranormal experiences (King & Appleton, 1997), and relegating it to the fields of parapsychology and 'New Age' thinking (Boucouvalas, 1997; Claxton, 2000). Because it involved unconscious processing, intuition often seemed inaccessible to scientific study and therefore, empirically unverifiable. Osbeck (1999) cites historical definitions conceptions as "impressions of a certain indefinable quality," and "implicit apperception," which were contrasted with "higher" mental functions such as abstract thinking and language (McDougall, 1923, p.389). Osbeck noted that intuition was seen as exhibited by those unable to think abstractly and who operate on a "lower plane of intellectuality", most notably women, young children, and dogs (McDougall, 1923, p.391).

One notable exception was the work of Jung (1923, 1968), who viewed intuition as a type of perception existing outside of reason that goes through our unconscious, but is not recognized in consciousness. Jung (1923) defined intuition as "a perception of realities which

are not known to the conscious, and which goes via the unconscious. The intuitive function is represented by a certain attitude of expectation, a perceptive and penetrating vision" (p.462).

A few early psychological studies identified intuition as a particular kind of interpersonal judgment or social perception, distinguished by individual differences in personality characteristics (e.g. Valentine, 1929; Westcott, 1968). Westcott (1968) was among the first to systematically study intuition, defining intuitive thinking as, "the event which occurs when an individual reaches a conclusion on the basis of less explicit information than is ordinarily required to reach that conclusion" (p.100).

Research on the role of intuition and affect in moral judgment resurgence of interest began in the last two decades after a focus on deliberate, conscious moral reasoning (e.g. Kohlberg, 1981). A rapidly growing literature began to distinguish the products of moral judgment as either emotional-intuitive and non-rational (Haidt, 2001; Haidt, Koller, & Dias, 1993; Haidt, 2008), or deliberate, explicit cognitive processes (Kohlberg, 1971; Piaget, 1932; Turiel, 1983).

Recent advances in cognitive science even began to suggest that intuitive processes are not mystical, paranormal, random, or irrational (Khatri & Ng, 2000). Several developments signal that intuition is a concept that can be empirically verified, and is important in a variety of cognitive processes, from the use of heuristics in decision-making (Tversky & Kahneman, 1983; Sunstein, 2005), to its role in learning (Hogarth, 2001).

An extensive body of research has emerged emphasizing the role of emotional and intuitive processes in decision-making (Bargh & Chartrand, 1999; Dijksterhuis, Bos, Nordgren, & van Baaren, R.B., 2006; Greene & Haidt, 2002; Haidt, 2001; Siegler, 2000). The dramatically increased concern with unconscious or implicit phenomena has commensurately

increased experimental interest in intuitive sources of judgment. Lieberman (2000), for example, has argued that a similarity exists between intuition and implicit learning, and suggests that it may be fruitful to combine these two constructs to give intuition some credibility. Intuition is described by Lieberman (2000) as "the subjective experience of a mostly non-conscious process that is fast, a-logical, and inaccessible to consciousness that, dependent on exposure to the domain or problem space, is capable of accurately extracting probabilistic contingencies" (Lieberman, 2000, p.111). In other words, intuition is a subjective experience equated with unconscious information processing, and is presented as an inferential reasoning process that operates below the threshold of awareness through implicit learning.

Intuition and the Brain

Neuroscience research has made it increasingly evident that there are inter-connections between moral reasoning and the physical brain. The focus is shifting from an emphasis on cognitive processes to the important role of the physical brain on moral reasoning (Tancredi, 2005). Functional neuroimaging studies have identified a network of brain regions involved in moral processing, implicating a fairly consistent but diverse network of brain regions involved in moral processing: the anterior cingulate cortex, anterior medial prefrontal and orbital frontal cortex, anterior prefrontal cortex, anterior temporal lobes, medial and lateral orbitofrontal cortex, dorsolateral and ventromedial prefrontal cortex, insula, precuneus, superior temporal sulcus, and posterior cingulate cortex, posterior superior temporal sulcus, and limbic regions (e.g., amygdala) (Damasio, 2000; 2003; Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Mikhail, 2007; Moll, Zahn, de Oliveira-Souza, Krueger, & Grafman, 2005; Narvaez & Vaydich, 2008).

A review by Moll et al. (2005) found converging results across functional imaging

studies of the brain areas involved in moral cognition. Examining processes of moral judgment, Moll et al. (2005) found activation in the frontopolar cortex, medial frontal gyrus, right anterior temporal cortex, lenticular nucleus and the cerebellum, demonstrating an evolutionary correlation between older and younger parts of the brain. Casebeer & Churchland (2003) found agreement across lesions and neuro-imaging studies, which revealed that ventromedial prefrontal damage is consistently associated with impairments in moral decision-making, non-moral decision-making, and emotion (Damasio, 1994; Anderson, Bechara, Damasio, Tranel, & Damasio, 1999).

There is a growing consensus that moral judgments are based largely on intuition about what, in particular cases, is right or wrong. Evidence from neuroscience indicates that moral judgment is often an intuitive, emotional matter. Greene and colleagues (Greene & Haidt, 2002; Greene et al., 2001; Greene, Nystrom, Engell, Darley, & Cohen, 2004) have argued that some moral judgments, which we consider personal, are driven largely by emotions such as empathy, anger, and intuitive-emotional responses, while impersonal, moral judgments are driven more by deliberate, cognitive moral reasoning. In the first neuroimaging study of moral reasoning, Greene et al. (2001) suggested that reasoning can play an important role in the production of impersonal moral judgments, and in personal moral judgments where reasoned considerations and emotional intuitions conflict. Greene et al. (2001) compared reasoning about ethical dilemmas that are emotionally engaging (the footbridge dilemma, dilemmas in which physical harm is caused to another person directly by the agent) with less emotionally engaging dilemmas (the trolley dilemma, and dilemmas in which physical harm is caused to another person only indirectly).

Greene et al. (2001) showed that ‘‘personal’’ moral violations, which were those likely

to cause serious bodily harm to a particular person, activated the medial prefrontal cortex, posterior cingulate cortex, and angular gyrus bilaterally more strongly than ‘‘impersonal’’ moral violations, where no serious harm was likely to occur. They attributed the activation pattern to the emotional component of the task, and concluded that affect plays an important role in personal moral judgment. Moll, Oliveira-Souza, & Eslinger (2003) found similar results that when subjects made moral, as opposed to factual, judgments, areas of the brain that are associated with emotional response were active.

Bauman and Kuhl (2002) argue that extended associated networks are activated automatically on exposure to a stimulus (e.g. word triads), and that parallel processing of information is initiated, which is holistic and implicit, and may give rise to an intuitive 'sense' of coherence (Anderson, 1983). Related work has implicated the median orbito-frontal cortex (OFC), the right lateral portion of the amygdala and the ventral-occipito-temporal (VOT) regions as areas in which intuitive judgments of visual coherence are generated, prior to problem solution (Volz & von Cramon, 2006). Volz & von Cramon (2008) proposed that without conscious attention, people continuously recognize patterns in the stream of sensations, based on only a few aspects of the input. Similarly, Radin and Schlitz (2005, p.85) define “gut feelings” as “commonly reported visceral sensations that are virtually synonymous with intuitive hunches,” and hypothesize that these hunches involve the use of non-sensory information by the recipient. The authors note, however, that what is measured as an “intuitive hunch” in many studies can actually be attributed to forgotten expertise, subliminal cues, and unconscious somatic influences (Damasio, 1994; Torff & Sternberg, 2001).

Intuitions are part of the larger set of social intuitions that become increasingly differentiated as they guide people through complex, highly uncertain, and rapidly changing

social interactions (Woodward & Allman, 2007). The neurobiological substrate for these intuitions includes the insular, cingulate, and orbito-frontal cortices, and associated subcortical structures such as basal ganglia and amygdala which have been implicated in intuitive processing by many functional imaging and brain lesion studies (Damasio, 1994; Rilling et al., 2002; Singer, Kiebel, Winston, Dolan, & Frith, 2004). Brain lesion studies have also revealed a very interesting feature of the neurobiological development of moral intuition (Woodward & Allman, 2007). Damage to the orbito-frontal cortex in infancy has a significant impact on adult moral intuition and judgment (Anderson et al., 1999).

Lieberman (2000) established a link between implicit learning, intuition, and the "non-conscious predictive sequencing" performed by the basal ganglia. If intuition and implicit learning are both largely dependent on the basal ganglia, Lieberman (2000) argues that this would constitute strong evidence that the two are related, overlapping processes. It may then be fruitful to consider intuition as the subjective experience associated with the use of knowledge gained through implicit learning. Implicit learning and knowledge contribute to the knowledge structures from which individuals draw when making intuitive judgments. However, although they may underpin the processes that lead to an intuitive judgment, they are not equivalent to intuitions.

Evolutionary Theories

Haidt & Joseph (2004) suggest that we have evolved to find certain issues morally relevant because of our ancestors' physical and social experiences. Haidt & Joseph (2004) identified four structures individuals are innately designed to be responsive to the presence of certain social cues: 1) suffering/compassion 2) transgressions against group

hierarchy/respect 3) reciprocity/fairness and 4) purity. Individuals usually automatically and reliably react with feelings linked to moral intuitions (Haidt & Joseph, 2004).

Haidt (2001) proposes that morality "is a major evolutionary adaptation for an intensely social species, built into multiple regions of the brain and body, that is better described as emergent than as learned, yet that requires input and shaping from a particular culture" (Haidt, 2001, p.826). Haidt (2001; 2004) argues that intuitions are innate, enculturated, cognitive-emotive structures that are shaped by the physical, cultural, and social processes of evolution. Cappon (1993) conception of intuition also leans in this direction, defining the construct as "the product of all the processed ancestral instincts of the species, through which unconditioned reflexes become conditioned and organized into patterns of adaptive behavior" (p. 41).

Hauser (2006) argues that humans are endowed with a universal moral grammar or moral organ. Hauser claims that: "we evolved a moral instinct, a capacity that naturally grows within each child, designed to generate rapid judgments about what is morally right or wrong based on an unconscious grammar of action" (p. xvii). Humans have an innate capacity to develop a moral sense, much in the way we have now come to view the capacity to acquire language.

Hauser illustrated how and why moral intuitions have evolved in the context of moral conflict and often serve as a source of moral decisions. For example, Hauser (2006) argues that moral judgments are mediated by an instinctual, unconscious process that evaluates our own and others' actions. Hauser (2006) describes these moral intuitions as an "evolved capacity of all human minds that unconsciously and automatically generates judgments of right and wrong" (p. 2). He notes that these intuitions do not make moral judgments "inescapable". "Rather, they color our perceptions, constrain our moral options, and leave us dumbfounded because the

guiding principles are inaccessible, tucked away in the mind's library of unconscious knowledge" (Hauser, 2006, p. 2). We can thus make moral decisions based on unconscious and inaccessible principles within a "domain of evolved parameters" that guide our moral thought and behavior.

However, critics (de Waal, 2001; Wright, in press) of the evolutionary approach suggest that the notion of intuition being genetically "hardwired" into our brains is too simplistic. This argument raises important issues that have yet to be answered. Even though theories of innateness and evolution are useful in studying intuition in morality, they do not explain how intuition develops. In general, research on intuition suffers from the absence of models of how intuitions develop. It is important, therefore, to consider how to develop a conceptual framework capable of clarifying these issues. A clearer theoretical framework is needed than those that have thus far guided the research in this area. The question for cognitive-developmental psychologists and educators then, is how is intuition acquired and developed?

Developmental Frameworks of Intuition

Baylor (2001) proposed a non-linear u-shaped model of intuition development influenced by an individual's level of expertise within a given subject area. Intuition can start at a relatively high level and then decrease or increase depending on the level of expertise in a subject area. In this model, two ends of the "U" developmental curve represent two qualitatively different types of intuition: immature and mature intuition. Immature intuition is most common where the analytical knowledge of a novice does not interfere with the ability to make novel insights. Mature intuition is more rare, and is most available when an individual has obtained expertise with well-developed relevant knowledge structures. Baylor (2001)

proposes that a person is able to construct higher connections and understandings with an increase in expertise.

Welling (2005) constructed phases of intuitive knowledge representing different modes of knowledge representation. Welling (2005) models intuition as a constructive process of early knowledge representations based on pattern recognition. An individual would start in a detection phase, in which a clue of something arises in consciousness, and move to a dichotomic awareness phase, in which the intuition comes to awareness, and important factors are identified. Then in the metaphorical solution phase, one recognizes how the elements are important. Finally, at the explicit verbal understanding phase, intuition is completely clear.

Whereas rational approaches to morality provide explicit accounts of how moral development occurs, virtually no studies (with the exception of Baylor, 2001 and Welling, 2005 above) have provided an adequate account of intuitive moral development. However, researchers have explored how intuitive understanding emerges as children use intuitive thinking to interact with the environment (Noddings & Shore, 1984).

Several researchers (Carey, 1985; Gopnik & Meltzoff, 1997; Inagaki & Hatano, 2002) argue for the importance of intuitive theories in children's lives, framing the major transitions of cognitive development as instances of how children's intuitive theories develop and change. Studies of natural variation demonstrate that children's intuitive theories develop and change in response to evidence (Gopnik & Schulz, 2004). Flavell (1999) has shown that even infants seem to possess intuitive theories of the physical, biological, and psychological world. Young children in preschool use these intuitive theories to make causal predictions, provide causal explanations, and reason about causation counterfactually. Children's moral intuitions involve

strong dualistic “with me or against me” feelings, while adults will experience more a wider range of moral intuitions that are more subtle (Woodward & Allman, 2007).

Educational research (Baylor, 2001; Ben-Zeev & Star, 2001) has revealed students’ pre-existing knowledge in order to make connections between students’ school-taught, formal knowledge, and their informal intuitions. Strauss (1982) cites empirical research showing that younger children intuitively comprehend problems about temperature correctly (e.g., that cold water + cold water = “same cold" and not "twice as cold"), but that later, under the influence of formal education in arithmetic operations, children become confused and give incorrect answers. Ben-Zeev & Star (2001) suggest that preschoolers not only possess general abilities to sense and learn, but that they are also able to create and manipulate domain-specific representations. Gelman and colleagues (Gelman, 1979, 1990; Gelman & Meck, 1983) propose that preschoolers have implicit counting principles before they are able to verbalize these principles explicitly.

Researchers have argued that intuitive processes can evolve from implicit learning and experiences that are flexible and context sensitive (Isenberg, 1984; Simon, 1987; Agor, 1990; Kleinmuntz, 1990; Ray & Myers, 1990; Parikh, 1994). Furthermore, young children, who have less exposure to linear, logical thought processes, are more naturally inclined to intuition, and can thus be more easily trained to be intuitive than older children (Noddings & Shore, 1984).

2.1.3 Summary for Intuitive and Rational Reasoning

The chapter has reviewed how the rationalist approach to moral judgments formed primarily through a two divergent modes of moral reasoning. Moral choices and judgment can involve both orientations of justice and care. Issues of care center on attachment, empathy and a focus on relationships, connection, care for others, whereas justice involves competing rights

and responsibilities, and ideals of equality, reciprocity, fairness, individualism, and autonomy.

This section of the literature review has also attempted to understand the nature and development of intuitionist approaches to morality. Intuition has been studied across several fields, including philosophy, cognitive science, developmental psychology, moral psychology, and more recently neuroscience, and the lack of consistent or clear definitions within or across fields has been a major impediment to empirical research on intuition. The term 'intuition' is defined in numerous and conflicting ways, often because relevant work is scattered and poorly integrated throughout these different bodies of literature (Turiel, 1998). There is considerable disagreement about the nature of the processes that underlie or generate intuitions, and about their role in moral functioning. The conceptual development of intuition remains problematic, suffering from vague and inconsistent uses (Osbeck, 1999).

Intuitions are typically holistically experienced without thought or conscious processing. However, recent research suggests instead that they are based upon rapid inferences, pattern recognition, and cognitive processing that does not rise to the level of consciousness, and are often founded upon learning so implicit or deeply embedded as to seem "automatic". Important new research on automaticity and in neuro-science has begun to study conditions under which decisions and solutions can be reached instantly through intuitive processing, and has linked these processes to specific areas of the brain. Neuro-scientific research has also established clear links between intuitive processing and emotions, for highly valenced conditions can often call for automatic or intuitive processing, and the decisions or conclusions reached are often accompanied by strong affect. Although there are many complexities and caveats, these highly diverse perspectives and disciplines seem in important ways to be converging towards agreements that although moral judgments often strike the

subject as intuitive, "gut" reactions, they seem instead to be learned responses so deeply "wired" into our neuro-cognitive systems through eons of evolutionary biology and years of cultural socialization that they exhibit features highly similar to the automaticity characteristic of affect-laden responses and of experts across wide spectrums of performance and problem solving.

Most explanations of moral psychology now acknowledge both intuitive and rational factors, but the lack of common or clear conceptualizations within or across fields has been a major obstacle to empirical research on intuition. Researchers have also failed to explore how the intuitive and rational processes interact (Turiel, 1998). The current findings suggest that, regardless of where the division between intuition and rationality is placed, a multifaceted, dynamic model of moral judgment is needed. This would contrast with to Kohlberg's (1969) perspective, which assumes that all moral reasoning is the product of conscious reasoning.

In the light of the advances outlined above, it is now possible to offer a better-integrated and more coherent account of the nature and role of moral intuition and rationality. For this purpose, I turn to dual-process theories in cognitive psychology for a more integrated and coherent account of intuitive and rational processing. Dual-process theories can help clarify the definitions of rationality and intuition and how they differ from one another in the formation of moral judgments.

2.1.4 Dual Process Theories

Many psychologists and cognitive scientists have proposed dual-process accounts of cognitive processing (Chaiken & Trope, 1999; Evans, 2003; Denes-Raj & Epstein, 1994; Epstein, Pacini, Denes-Rai, & Heier, 1996; Simmons & Nelson, 2006; Sloman, 1996; Sun, 2004; Stanovich & West, 2000) in which two distinct forms of processing are performed by

two distinct, parallel, but interactive systems: one process that is intuitive and subconscious, and one process that is rational and conscious.

Evans (2003) described System 1 (intuitive processes) as "rapid, instinctive, and automatic in nature: only their final product is posted in consciousness"(p.454). System 1 is characterized as implicit, unconscious, holistic, primarily nonverbal, and emotionally driven. System 1 is a relatively effortless system that relies on prior knowledge, heuristics, immediate experience, suggesting that implicit processing occurs incidentally and without awareness of cognitive processes. System 1's rapid cognitive processes can be either unintentional and effortless or intentional but effortless.

The rational system (System 2), on the other hand, is thought to have evolved more recently than System 1, is unique to humans, rule-based, and was developed to operate in the medium of language (Osman, 2004). System 2 is explicit, sequential, and its explicit processing is deliberate and always accompanied by awareness. Compared with System 1, System 2 (rational) cognitive processing is slower, more controlled, and requires greater effort. The rational system operates primarily at the conscious level and is primarily verbal and relatively affect free. It functions using a person's abstract hypothetical reasoning (e.g. constructing mental models, logic) that cannot be achieved by System 1. Alter, Oppenheimer, Epley, & Eyre (2007) also noted that System 2 could override or undo intuitive System 1 responses.

Haidt (2001) argues that moral judgment is the result of quick, automatic evaluations or intuitions and not the conscious, deliberative outcome of a reasoning process. More specifically, Haidt (2001) proposes a Social Intuitionist Model to demonstrate that moral intuitions, arising from cultural forces and evolutionary adaptations, cause moral judgments.

Moral intuitions, according to the model, lead directly to moral judgments, which Haidt defines as "evaluations (good versus bad) of the actions or character of a person that are made with respect to a set of virtues held to be obligatory by a culture or subculture" (Haidt 2001, p. 817). Similar to Evans' (2003) discussion of System 1 processing, Haidt (2001) defines intuition as "the sudden appearance in consciousness of a moral judgment, including an affective valence (e.g. good-bad, like-dislike), without any conscious awareness of having gone through steps of searching, weighing evidence, of inferring a conclusion" (p. 818). Haidt (2001) characterizes intuition as fast, automatic processing that that produces reactions (e.g. moral-emotional responses) so rapidly and unconsciously that the processes are not available to introspection. One's own reasoning thus usually only acts indirectly via the intuitions, judgment, and reasoning of other individuals, and typically only justifies the moral judgment determined by the individual's intuitions.

Haidt's social intuitionist model has been subjected to numerous criticisms. Pizarro & Bloom (2003) argued for a more significant and explicit role of moral reasoning processes than Haidt's (2001) Social Intuitionist Model allowed, suggesting that fast and automatic intuitions can actually be shaped, controlled, and informed by prior reasoning. Fine (2006) claimed that intuitive moral judgments may reflect the automatization of goals based on prior knowledge and reasoning.

In Haidt's (2001) dual-process model of moral cognition, reason justifies intuitive moral judgments, as reasoning typically only acts indirectly through the intuitions. Haidt (2001) explains that as a consequence "moral reasoning is biased and post hoc: moral reasoning is not left free to search for truth, but is hired out like a lawyer by various motives, employed only to seek confirmation of preordained conclusions" (p. 822). Moral reasoning justifies the moral

judgment reached by the individual's intuitions, and is a post hoc construction with little or no influence on the outcome.

Recent research has also begun to find neuro-scientific support for dual processing. Based on their fMRI study, Greene et al. (2004) proposed a dual process model for moral judgment based on an affective system and cognitive system. Similarly, Lieberman, Jarcho, & Satpute (2004) conducted an fMRI study that identified two processing systems, each serving distinctive aspects of social cognitive functioning about self-knowledge: the intuitive system and the analytic system. The phylogenetically older X-system, using parallel processing and non-reflective consciousness, is fast operating, slow learning, and spontaneous. The phylogenetically younger C-system, in contrast, uses reflective consciousness based on serial processing, and is slow operating, albeit fast learning and intentional (Lieberman, 2007). The X-system is a network of neural structures consisting of the basal ganglia, ventro-medial prefrontal cortex (VMPC), nucleus accumbens, amygdala, and lateral temporal cortex. In keeping with the predictions of the various dual-process theories summarized above, the X-system's intuitively based knowledge is located in neural substrates that are slow to form and change, while relatively insensitive to explicit feedback from others (Lieberman, 2000). Lieberman discovered that intuition-based self-knowledge system was associated with judgments in high-experience domains, and produced activations in the ventromedial prefrontal cortex, basal ganglia, and amygdala.

While this dual-processing paradigm has produced major advances in the literature, it also suffers from two limitations. First, as Gilligan has shown, decision-making in the context of real world moral conflicts can differ substantially from decisions in response to real-life dilemmas. Second, the literature does not yet have well-developed understandings of the

interaction between intuitive or rational processing on one hand, and the language a subject or respondent will use to discuss the dilemmas and their decisions on the other. Several issues have yet to be resolved, including the question of how the two systems might be applied to the study of language production in moral judgments.

Research on dual processing models has begun to identify conditions and problems that are more likely to generate or require rapid, intuitive thinking, or more deliberate and conscious processes of reasoning. However, the language terms and uses associated with these processes have not been studied systematically enough in either the dual processing literature or sociolinguistics to permit inferences about these decision making processes from subjects' discussions of their moral judgments. Dual processing models of cognition still need methodologies that could be adapted to examine the relationships between moral judgment and language use. Addressing this gap presents a large and important challenge that this thesis seeks to meet by examining how adolescent females use language to construct moral judgments. Building on the strengths and weaknesses identified in my analysis of the literature on intuition, I next proceed to discuss how to most effectively test and measure the development of intuition.

2.2 Review of Methodological Issues: Intuitive Reasoning

Efforts to operationalize and measure intuition long suffered from the lack of clear or common conceptualizations and definitions of the term, resulting in work of questionable scientific value. However, studies in widely different fields have now produced several approaches to conceptualizing, defining, and measuring the concept.

I review here some of these measures and their limitations, outline some alternatives to extant empirical indicators of the concept, and consider some theoretical implications of different methods of assessing intuition, including:

1. Qualitative self-report techniques, including philosophical analysis, introspection, anecdotal evidence, and armchair speculations, have been used to measure the quality of intuition as it is experienced.

2. Several scales measuring intuition as a self-reported personality construct, such as the Myers-Briggs Type Indicator (MBTI), usually obtained by probing respondents' general preferences, rather than from context-specific use.

3. Moral dilemmas involving, for example, sacrificing one individual to save five, or disgusting but harmless taboos.

4. Neuro-psychological studies using functional magnetic resonance imaging (fMRI), positron emission tomography (PET), electroencephalography (EEG), and other techniques to identify areas of the brain stimulated in solving moral problems or dilemmas, and using variations in the tasks or dilemmas to help distinguish moral reasoning from other types of decision making and the role of affect.

2.2.1 Qualitative Self-Report Methods

Since it involved unconscious processing, intuition often seemed inaccessible to scientific study. Early behaviorists, such as Skinner (1953), viewed inner processes or states not worthy of serious study. Sinclair & Ashkanasy (2005) observed that intuition had been "restricted to the realm of philosophy" because it was too elusive to define and measure for so many years. Philosophical analysis relied heavily on the traditional tools of philosophical

analysis, along with introspection, anecdotal evidence, and armchair speculation (Casebeer & Churchland, 2003). Over the past fifty years, philosophers often used intuitions in their philosophical arguments. The first qualitative traditions for measuring intuitive moral judgments originated in the thought experiments conducted by moral philosophers to develop their arguments. For example, philosophers employed hypothetical "thought experiments" meant to trigger certain intuitions, typically in order to assess the degree to which thought experiments seem plausible or implausible, or as possible or necessary. Dennett (1991) coined the term "intuition pump" for a philosophical thought experiment designed to elicit intuitive responses about a problem in which an event described in some imaginary scenario were actual. Dennett (1984) states the following about these 'intuition pumps', "Such thought experiments are *not* supposed to clothe strict arguments that prove conclusions from premises. Rather their point is to entrain a family of imaginative reflections that ultimately yields not a formal conclusion but a dictate of intuition" (p. 12).

The first qualitative traditions for measuring moral judgments originated in philosophical thought experiments, which had little, if any, empirical substantiation. Research also shows, however, that people often do not have introspective access to how or why they made an intuitive judgment, and these might more appropriately be seen as measures of how people justify or reason about moral decisions. Self-report measure may not tap into individuals' actual use of intuition, because they only assess one's perception of their use of intuition. The application of qualitative self-report techniques to people's reflections on their judgments, especially judgments on scenarios or dilemmas in laboratory settings, may therefore not provide the most valid methods for identifying how these judgments were reached. The literature then shifted from approaches based on philosophical self-report techniques, self-

introspection, journal content analysis, and in-depth interviews to efforts to construct personality scales and inventories.

2.2.2 Personality Measurement Scales and Inventories

Personality scales and inventories have often been used to measure intuition as a predisposition, preference, an ability, or self-reported personality construct (e.g., Epstein et al., 1996). One of the first researchers to systematically study intuition, Westcott (1961, 1968) measured patterns of personality differences in intuitive thinking. Participants were asked to solve an intuitive problem-solving task composed of four different types of problems: numerical series problems, verbal series problems, verbal analogy, and numerical analogy. Westcott (1968) eventually created a Test of Intuitive Ability to measure intuition responses in which individuals were asked to give correct answers based on limited information.

Similarly, problem-solving tasks have also been used where intuitive processing is often inferred from reaction times, or self-reports. Measures such as the Accumulated Clues Task (Bowers et al., 1990), the Iowa Gambling Task (Bechara, Damasio, Damasio, & Lee, 1999) and the Waterloo Gestalt Closure Task (Bowers et al., 1990) all consist of items to which participants were required to generate a hunch or solution with incomplete information or insufficient time. Problem solving tasks either force rapid decision-making associated with intuition, or in conditions that are introduced that should favor intuitive or rational processes. For instance, the Accumulated Clues Task was developed by Bowers et al. (1990) to measure the amount of information required by a participant to produce a correct solution in a limited time frame. An individual is rated as more intuitive if limited information is required.

More recently, scales began to tap the holistic and affective characteristics of intuition. Cappon (1993) developed the IQ2: Intuition Quotient Test (Cappon, 1994), a visual laser-video

test of information processing, to measure intuitive processing separately from rational thinking by assessing holistic and knowledge-based pattern recognition. The Personal Style Inventory (PSI) (Taggart, 1993) arranges six scales on a spectrum from the most rational (planning) to the most intuitive (insight). The Preference for Intuition and Deliberation (PID) scale assesses individual preferences for intuitive and deliberate decision-making (Betsch, 2004). The Human Information Processing Survey (Taggart and Torrance, 1984) assesses preferences in rational-intuitive terms, and locates individuals within a four-fold typology.The Myers Briggs Type Indicator (MBTI) can be used to assess the extent to which participants intuitively make sense of their perceptions. This scale measures an individual's preference for imagination, possibility, and abstract relationships over reality and concrete facts. The Intuitive/Sensate scale of the MBTI (Myers, McCaulley, Quenk, & Hammer, 1998) is based on the work of Jung (1968), and is incorporated into the MBTI and associated research as one of the four basic mental functions that Jung identifies (Myers et al., 1998). The Thinking/Feeling subscale measures an individual's preference for thinking as opposed to feeling in making decisions. Theoretically, the Intuitive/Sensate scale may tap the holistic nature of intuition, while the Thinking/Feeling scale reflects the affective nature of intuition.

The Cognitive Style Index (CSI; Allinson and Hayes, 1996) has been designed to locate individuals along a uni-dimensional continuum, with high scores reflecting preferences for analytical decision-making styles, and low scores preferences for intuitive preferences. The Remote Associates Test measures the coherent, holistic nature of intuition (Bowers, Regehr, Balthazard, & Parker, 1990). The test presents dyads of three words each. The words in only one of the triads are all related, and can thus be considered coherent. Respondents are interrupted after a few seconds and are asked which pair is coherent and can be solved. This

elicits perception of coherence (pattern, meaning, structure) that unconsciously guides one's thought toward a hunch or hypothesis (Bowers et al., 1990).

Epstein introduced the Rational-Experiential Inventory (REI) a measure of preference for rational versus intuitive thinking that assesses intuition through experiential processing based on affective, heuristic, and holistic aspects of intuition (Pacini & Epstein, 1999). The REI consists of rational and experiential subscales, which are each divided into ability and favorability subscales. Ability subscales estimate a person's belief in his or her own ability to use rational or experiential thinking whereas favorability subscales reflect preferences to engage in that type of processing (e.g. logical and complex thinking about difficult problems).

Personality measurement scales and inventories, such as the REI and CSI, are promising because they simultaneously tap both intuition and rationality processes. However, these instruments assume that intuitive types share distinct personality characteristics and traits. This could limit their usefulness for measuring moral language; there may not even be a strong relationship between static personality traits and the more fluid processes of decision-making. Findings of studies investigating the relationship between personality and cognition have not always been consistent (Soubelet & Salthouse, 2011). Intuition and rationality, as measured by personality tests, are probably not utilized consistently in decision-making, especially across real life and hypothetical contexts. The two qualitatively different forms of processing, which we all engage in under different conditions, are not well conceptualized as personality traits. Processes of decision-making have become much more more accessible to observation, however, given important advancements in neuro-science.

2.2.3 Neuro-imaging Methods

Researchers in neuroscience have used a variety of methods to track how the brain makes moral decisions. These have included neuro-imaging techniques such as functional magnetic resonance imaging (fMRI), positron emission tomography (PET), electroencephalography (EEG), and neuronal recordings in non-human species. All of the measures assume a relationship between proximity and emotional processing and intuition. Neuro-imaging studies using fMRI have identified a network of brain regions involved in moral processing in a variety of paradigms, ranging from picture viewing (Moll, Oliveira-Souza, Bramati, & Grafman, 2002) to dilemmas depicting moral violations (Greene et al., 2001; 2004). For instance, *f*MRI has been used to differentiate moral from non-moral judgment processes, to link moral judgment to emotional processing, and to explain the role of proximity in moral dilemmas. FMRI studies testing moral judgment in normal adults (Greene et al. 2001, Greene & Haidt, 2002, Greene et al. 2004) and in individuals exhibiting atypical moral behavior (Blair, 2004) all suggest that emotion and intuition is a significant driving force in moral judgment. For example, the neural areas activated when subjects have moral intuitions in response to moral decision tasks (Moll et al., 2002) seem to be areas involved in social cognition that involves relatively quick and affective processing.

In two fMRI experiments, Greene et al. (2001) investigated the neural substrates of moral judgments about hypothetical personal versus impersonal dilemmas. Greene et al. (2001) administered fMRI scans in each of two experiments to nine participants, who were given a total of 60 dilemmas of a moral-personal, moral impersonal, and non-moral nature. Dilemmas were presented on a visual display projected into the fMRI scanner. In personal dilemmas, participants contemplated causing serious bodily harm or death to another person in

a way that did not simply deflect harm onto someone else. Personal dilemmas thus involved ‘‘up close and personal’’ harmful acts the subjects directly initiated whereas impersonal dilemmas did not meet these three criteria. They were then asked to judge if the action was permissible. The fMRI data from the dilemmas showed distinct brain mechanisms underlying each type of reaction. Brain areas associated with emotion were much more active in fMRI scans during contemplation of the personal moral dilemmas, and the actions in these dilemmas were more frequently judged to be less permissible. Greene et al. (2001) demonstrated that personal dilemmas engage brain regions involved in emotion (e.g. posterior cingulated gyrus, medial frontal gyrus), whereas impersonal dilemmas activate areas involved in deliberative reasoning (e.g., middle frontal gyrus) and working memory (e.g., parietal lobe, bilateral). There was no significant difference between the moral-impersonal and the non-moral condition.

There was great ambiguity in how Greene et al. (2001) attempted to distinguish the intuitive, more emotional "up close and personal" violation exhibited by the footbridge dilemma from the more impersonal, less emotional violation exhibited by the trolley dilemma. Questions about whether or not participants' lives were in danger were varied unsystematically across the dilemmas. More personal than impersonal dilemmas involved killing someone or threats of death (e.g. cases of infanticide, lifeboat scenario), and more impersonal than personal dilemmas involved less serious harm such as lying (e.g. lying on a tax return, putting false information on a resume). Dilemmas involving whether to make charitable donations or encourage the use of a vaccine were included in the impersonal dilemmas along with those involving deflecting threats of death (e.g., trolley dilemma). As a result, dilemmas differed not

only in their degree to which they were personal or impersonal, but also in the seriousness of the harm or threat involved.

Understanding of the role of affect in intuitive judgments has also benefited significantly from research that has explored the somatic aspects through various tasks. Researchers (McCraty, Atkinson, & Bradley, 2004; Radin & Schlitz, 2005) have argued for the importance of somatic markers (e.g. anticipatory skin conductance responses) for measuring intuition. Cutaneous electrogastrography (EGG) has been used frequently as a noninvasive way to monitor the gut's myoelectrical behavior (McCraty, Atkinson, & Bradley, 2004; Radin & Schlitz, 2005).

The use of fMRI and other imaging technologies to identify areas of the brain active during different tasks or scenarios has represented a breakthrough in several areas of cognitive science, and Greene et al.'s (2001) application of it to the study of intuition part of an important advance. Especially strong was their successful use of moral-personal, moral-impersonal, and non-moral to stimulate different areas of the brain associated with emotions and with more contemplative deliberation. The high concurrent validity between the content of the dilemmas and the brain areas stimulated seems to represent a signal advance in the measurement of affect in moral decision making.

However, the study did not really measure intuition, but instead the verbal report of affect. The brain scan methods infer the presence of moral intuition from observations on emotions, whose arousal the scans very convincingly measure. However, the fMRI scans did not establish whether intuitions follow emotions in moral judgments, which would be necessary to establish that the emotions detected match or predict moral intuitions, and hence provide valid indicators of the intuition. The fMRI methodology assumes that the arousal of emotions

validly reflects the construct of intuitive judgments (construct validity), and that the lower emotional arousals and response times in moral-impersonal and non-moral dilemmas are consistent with the affect responses, and perhaps intuitions, to correlate with or generate (criterion validity, concurrent and predictive). However, these measures are all also consistent with subjects reasoning (perhaps rapid and nearly unconscious) that principles and rules of greater import or salience (based upon perceived harms and/or personal proximity and responsibility) had been violated. The fMRI measures could thus instead be providing valid measures of a different construct (moral reasoning) with its own relationship to the affective correlates as criteria. The question of the salience of a decision has become central in the literature's reliance upon hypothetical dilemmas for studying moral decision-making. The next section discusses that literature.

2.2.4 Moral Dilemmas

Hypothetical Dilemmas

The fields of philosophy and psychology have long used moral dilemmas to examine which moral judgments of particular actions qualify as right or wrong, and are seen as instances of justice or kindness (Cushman, Young, & Hauser, 2006; Kohlberg, 1981, Thompson, 1986). Intuitive judgment is often inferred from the speed of judgments across respondents, their inability to provide rational justifications for the judgments they reached, and respondents' firm conviction that the judgments were correct even when they cannot rationally justify them. Greene et al. (2001) suggest that moral dilemmas vary systematically in the extent to which they engage intuitive, emotional processing and reasoned considerations in moral judgment. They hypothesized that the brain areas associated with emotion would be more active during contemplation of "up close and personal" dilemmas than during more detached dilemmas. The

emotional intuitive reaction is to actions that are "up close and personal," and that give us an automatic sense of right or wrong. In contrast, impersonal actions elicit a slower, more deliberate, reflective and reasoned response.

Common dilemmas include the popular trolley and footbridge scenarios (e.g. Hauser, 2006; Naylor, 1988). In the trolley case, a runaway trolley will kill five people unless one hits a switch that will turn the trolley onto an alternate set of tracks, where it will kill one person instead of five. Should one divert the trolley in order to save five people at the expense of one? In the Footbridge case, one is standing next to an exceptionally large stranger on a footbridge that spans the tracks, where a runaway trolley will again kill five people if it proceeds on its present course. It is clear that they can't get out of the way in time to keep from being hit. Pushing the stranger down onto the tracks will stop the train before it reaches the five people, and save their lives, but the stranger will die. Should one save the five people by pushing the stranger onto the tracks or not?

Even though five people live and one dies in both scenarios, most participants express their willingness to push the lever in the trolley case, and judge this as the right thing to do. However, they often resist pushing the man onto the tracks, and see it as morally wrong (Greene et al., 2004; 2001). Both philosophical (Naylor, 1988; Thompson, 1986) and psychological (Greene, et al., 2001, 2004) explanations have been given for why people treat these two cases differently.

Haidt's argument is that the choices made on these dilemmas are automatic outcomes of moral intuitions, and not the deliberated result of some reasoning process. They are intuitive in that they appear in consciousness without any awareness of a deliberative process. Haidt (2001) uses the following dilemma to explore the nature of moral intuitions (p. 814):

> Julie and Mark are brother and sister. They are traveling together in France on summer vacation from college. One night they are staying alone in a cabin near the beach. They decide that it would be interesting and fun if they tried making love. At the very least it would be a new experience for each of them. Julie was already taking birth control pills, but Mark uses a condom too, just to be safe. They both enjoy making love, but they decide not to do it again. They keep that night as a special secret, which makes them feel even closer to each other. What do you think about that? Is it OK for them to make love?

Haidt (1993; 2000) also developed four disgust dilemmas describing disgusting, but harmless, taboos involving either unusual sex or eating unusual objects. Haidt found that most people were disgusted by these situations, and judged the actions as wrong, even though they could give no reasons when prompted. This experiment demonstrated that when moral intuitions and reasoning are disassociated, participants make judgments based on their intuitions, not their reasoning.

Haidt & Hersh (2001) studied moral worldviews of conservatives and liberals on issues of sexuality. The study asked political liberals and conservatives to judge a series of sexual behaviors deemed harmless to others, including various forms of masturbation, homosexuality, and consensual incest. The responses exhibited "dumbfounding," that is, the voicing of strong opinions without the ability to explain one's position, indicating a strong emotional reaction without much cognitive underpinning. "Moral dumbfounding" was primarily exhibited by political conservatives, and in both groups, dumbfounding was evidenced primarily on the issue of homosexuality.

Moral dilemmas have long been used in philosophy and psychology to probe moral judgments (Thompson, 1986), but not to measure moral justifications. To study justification, Hauser (2006) hypothesized that an innate moral grammar encodes a rule to the effect that using someone as a means to an end is wrong. To test this hypothesis, Hauser (2006) presented participants with two variations on the footbridge case. In one, Ned can flip a switch to divert a

trolley from a track with five hikers to a looping side track containing one man, who is heavy enough to stop the trolley from looping back to the initial track and killing the five. The overweight man is thus a means to saving the five. The second case is identical, except that the looping sidetrack contains a single slim hiker who is not heavy enough to stop the trolley, and a weight that is. Here the weight will stop the trolley, and the hiker's death will only be a side effect of (rather than a means to) saving the five. Respondents were much more likely to judge the action as permissible when the resulting death was a side effect of saving the five, and not a means for doing so (Hauser, 2006).

Questions about whether or not participants' lives were in danger were varied unsystematically across the dilemmas (e.g. Greene, 2002). More personal than impersonal dilemmas involved killing someone or threats of death (e.g. is it appropriate to push your boss off the building in order to get him out of your life?). In contrast, more impersonal than personal dilemmas involved less serious harm such as lying (e.g. is it appropriate for you to pretend that certain personal expenses are business expenses in order to lower your taxes?) Dilemmas involving whether to make charitable donations or encourage the use of a vaccine were included in the impersonal dilemmas, along with those involving deflecting threats of death (e.g., trolley dilemma). As a result, dilemmas differed not only in their degree to which they were personal or impersonal, but also in the seriousness of the harm or threat involved. Varying the degree to which a hypothetical dilemma is more personal or impersonal does not alter the fact that it is hypothetical, however, and therefore of possibly less salience than the decisions we might confront in our own lives. The next section explores important critiques of the traditional moral development literature based on this hypothetical vs. real-life distinction.

Real-Life Dilemmas

Gilligan (1982; Brown & Gilligan, 1992) criticized the exclusive reliance upon hypothetical dilemmas in the paradigms developed by Kohlberg and his colleagues (Colby & Kohlberg, 1987). She argued that real life dilemmas were more personally relevant, emotionally engaging, open-ended, particular, and contextually rich (Walker, 2006). Genuine dialogue allowed adolescent girls to speak about their struggles in their own voices. To analyze how these voices mediate women's responses to real life scenarios, Brown, Tappan, Gilligan, Miller & Argyris (1989) and Brown & Gilligan (1992) developed *A Listener's Guide*, a systematic voice-centered relational method for hearing and understanding the structure of a person's meaning that express notions of the self in the relationships. The guide to listening assesses language or women's "articulation of relational voices" in the context of relationships, rather than in a fixed framework for interpretation. Brown & Gilligan (1992) attend to recurring words and images, metaphors, emotional resonances, presence of the first-person pronoun "I", inconsistencies in style, shifts in the use of first, second, third person narration.

Brown & Gilligan (1992) listened to audiotapes and read interview transcripts at least 4 times to sort out the different voices and listening for the "polyphony of voice". The first two listenings involved listening for the voice of the first person pronoun "I" and the plot and "I," while the third and fourth listenings involved attending to the way women speak about relationships. Brown & Gilligan (1992) argued that listening to women's voices enabled them to determine that as girls age, they become less egocentric, more autonomous, and are better able to distinguish their emotions and thoughts from those of other people.

Hypothetical moral dilemmas provide a somewhat useful method for probing the nature of intuitions. It is difficult to accurately report one's intuition (Schooler & Melcher, 1995), and

participants cannot merely be asked why they responded to moral dilemma in a certain way. Compared to real world scenarios, hypothetical dilemmas have the advantage of guaranteeing subjects will have no familiarity with or personal attachment, and no in-group versus out-group biases because the hypothetical subjects are anonymous. The dilemmas seem to have concurrent validity in that they reliably evoke moral responses consistent with the constructs as defined conceptually. However, the experiments may not reflect the way people actually make moral judgments in the real world. Real-world dilemmas often involve real costs and benefits, real consequences, and much uncertainty. In contrast, artificial dilemma judgments could change with subjects' relationships to the hypothetical subjects. Therefore, hypothetical dilemmas may not produce valid measures of real-world decision-making processes. Some participants may not actually perform the actions that they said they would in the experiment. In real life situations, emotions may also play a larger role.

The Listener's Guide surfaced as the more promising instrument for measuring moral language robe how people make moral judgments in complicated, real world situations. The dilemmas seem to have face and construct validity in that they evoke the construct of emotion as defined conceptually. One might also argue that this inferential measure of moral intuition has criterion validity, in that the judgment is accompanied, as the theory suggests, by strong emotional reactions and an inability to support the judgment with moral reasoning. The validity of inferring intuition from reactions to dilemmas can thus be questioned. Emotional reactions to the dilemmas might not provide a valid indication that a moral judgment was intuitive.

2.2.5 Summary

Measures of intuition have been presented across disciplines to demonstrate the relevance of methods to the current empirical analysis of intuition. The studies I reported are concerned with measuring intuition using qualitative self-report techniques, problem solving tasks, moral dilemmas, and neuro-physiological studies employing fMRI, PET, EEG, and other techniques. The literature includes qualitative and quantitative empirical work, theoretical work, case studies, evaluative research, and descriptive approaches. Research has used a mix of psychological, neuropsychological, and physiological methods to test intuition. However, these measurement methods all have serious limitations.

The study of intuition has advanced from its exclusion from scientific research and measurement by non-rigorous philosophical methods that led to misinterpretation of data or unsubstantiated conclusions. There has been a surprising amount of disagreement arising in different contexts and from different theoretical perspectives among researchers across disciplines over a long time span. While continuous lines of research exist within philosophy and psychology, there seems to never have been any single tradition in which researchers have come together with a similar approach.

Qualitative techniques, including self-report, have not been extensively used to study the interactions and reflections of people engaged in real-world decisions about actual events and behaviors. Both the processes of arriving at moral judgments might differ substantially in the real world, both because subjects may feel personally responsible for the outcomes of their decisions and because family, peers, and other actors are often involved in the decisions and/or reflect upon them. The dominant methodologies for studying moral judgments are not well

suited to empirical studies of real world moral dilemmas and decisions, and qualitative approaches might provide very helpful alternatives for such studies.

Perhaps the greatest challenge facing the measurement of intuition is moving beyond the current treatment of affect or emotions as equivalent to intuition. Dilemma, fMRI, and other physiological measurement approaches all typically use measures of affect or emotion to represent intuitions or intuitive processing. As noted, this is link is open to serious question. An emotion is not an intuition. The traditions discussed assume that judgments are made intuitively on the basis of the emotion evoked or experienced, but it is also possible that the judgment is made despite the affect or emotion, or through a process involving reasoning from the affect or emotion, and possibly additional factors. The strong evidence of moral confounding suggests that at least some moral judgments are made consistent with the emotion or affect, and not despite it. This is far, however, from establishing that the judgment reflected the emotion and not rapid reasoning from ingrained cultural norms or prejudices which subjects are embarrassed to explicitly invoke.

The review of selected intuition measures identified no appropriate instrument that could comprehensively and accurately evaluate intuition. These findings suggest the need for a new theoretical and methodological perspective. An inter-disciplinary, mixed-method approach may therefore be needed to measure moral intuition (Davis-Floyd & Arvidson, 1997).

2.3 Moral Judgment and Language

2.3.1 Adolescent Girls' Language Development

Adolescence is a surprisingly understudied developmental period in sociolinguistics and psycholinguistics, with more attention directed to young children. Research has shown that syntactic language development continues into adolescence and adulthood (Nippold, Hesketh,

Duthie, & Mansfield, 2005; Verhoeven et al., 2002), but at a slower pace than in childhood. Whereas early syntactic growth is marked by the acquisition of new structures such as categorization of words and referential relations between words (Lust, 2008), later syntactic development is more cognitively sophisticated, characterized by growth in mean length of T-unit and clausal density (Nippold, 2007). A study by Nippon, Mansfield, & Billow (2007) examined syntactic complexity age-related patterns in expository discourse. With participants drawn from three age groups—11, 17, and 25 years-the findings indicated that older participants produced more multi- embedded utterances with longer T-units and greater amounts of subordination, primarily through the use of nominal and relative clauses.

In contrast to the large literature on intuition processes in morality, most sociolinguistic and psycholinguistic research has ignored the role of intuition and instead focused on emotive language. Psycholinguistic approaches differentiate between two categories of words – concrete or abstract and emotional (Pavlenko, 2008). Emotion words may differ significantly from abstract and concrete words in a number of ways, including representation, processing, polarity, and valence (Altarriba & Bauer, 2004; Pavlenko, 2008; Takamura, Inui, & Okumura, 2005).

There is, however a large body of research conducted on dichotomous characterizations of gender specific language in the study of emotional language, particularly in the areas of lexicon and semantics. These findings suggest that studies of girls may be more likely to provide rich examples of the use of emotive language in describing moral judgments and dilemmas.

A seminal work by Lakoff (1975) demonstrated that women use less assertive speech and more polite speech than men. Lakoff (1975) asserts that women's language use is marked

by their subordinate status in society that manifests itself in polite speech, including more euphemisms such as "gosh" or "darn" or instead of swear words more frequent tag questions (e.g., "It is the right thing to do, isn't it?"), hedges (e.g. kinda, sort of) more intensifiers (e.g., really, so), and more hedges (e.g., perhaps, maybe). Similarly, Leaper & Smith (2004) performed a meta-analysis indicating that girls to use affiliative speech (e.g. praise and agreement) to a greater extent than boys in order to establish or sustain relationships. Boys tended to favor self-assertive speech acts such as directives, negative speech, and disagreement.

More recent evidence suggests that young men and women significantly differ in the number of affect words they used, and in the ways they discussed emotions (Eckert & McConnell-Ginet, 2003). For instance, females more frequently report or express emotion terms referring to more intense positive and negative feelings. However, O'Kearney & Dadds (2004) contradicts this finding that women to use more interpersonal and affective words than men in emotion talk, showing that women focused more on the communicative aspects of discourse (Dewaele, 2004; Dewaele & Pavlenko, 2002). Important developments in the emotion lexicon occur in the beginning of early adolescence. These transitions include an enhanced ability to deal with complex emotional experiences (O'Kearney & Dadds, 2004; Saarni, Mumme, & Campos, 1997) and abstract concepts (Nippold, 2007) as well as the addition of variety and nuances to their use of emotion words (Saarni, Mumme, & Campos, 1997). This research is line with the claim that emotions are more prevalent in adolescent speech whereas descriptions and arguments are more commonly used by adults (Romaine & Lange, 1991). Adolescent speech has also been described as largely egocentric, with greater use of emotional language used to promote adolescents' own interests (Eckert, 2003).

O'Kearney & Dadds (2004) examined semantic and referential structures of emotion language. More specifically, language production for emotions in anger and fear contexts was explored in 303 adolescents between 12 and 18 years old. O'Kearney & Dadds (2004) concluded that adolescents shift towards broader, more differentiated and complex linguistic representations of emotion with age and towards using emotion terms across a wide range of semantic domains. The results show that adolescents frequently use situational, behavioral, and cognitive references to their emotions. However, as affective responses to sad and anger vignettes dominate in the emotion language, they decreased with age. Girls are also more likely than boys to be indirect in their talk about emotional responses in situations provoking anger.

There have been several studies documenting linguistic changes in adolescents (e.g. Goodwin, 2002; Kerswill, 1996) with the bulk of the work conducted by Eckert & McConnell-Ginet (Eckert, 2000, 2003, 2004; Eckert & McConnell-Ginet, 1995; Eckert & McConnell-Ginet, 2003). Work on phonological and grammatical variation has shown that adolescents use vernacular language more than other age group that reflect the communicative style of their peer groups. "Mainstream" Caucasian adolescents, for example, use features of Latino and African American Vernacular English to indicate being cool or tough (Eckert, 2003). In Eckert's (2000) ethnographic study of a Detroit suburban high school, adolescent girls exhibited high levels of linguistic variability across social categories: the jock girls are the most standard speakers; and the burnout girls are the most vernacular. The jock girls most frequently use *like* as a discourse marker, while the burnout boys are the most infrequent users.

There are several distinguishing characteristics of the language styles used by adolescents as they are continually creating new words for social types as evaluations of their

peers' behavior (e.g. *nerd*) (Eckert, 2004). There is also heavy reliance on paralinguistic elements in adolescent girls' speech (Romaine & Lange, 1991) with the use of discourse markers such as the use of *like*, *you know* and to the use of rising intonation on declaratives (e.g. okay with a rising intonation) (Eckert, 2000). Statements such as "I'm all like- what?!" or "she's all like-yeah right" Both are interpreted as quotatives or hedges (Romaine & Lange, 1991), and signal adolescents' lack of concern with precision, or unwillingness to take responsibility for their statements (Eckert, 2000). The use of "*like"* is used most frequently by females due to their highly engaged conversational style (Romaine & Lange, 1991). When used by adolescent girls, these discourse markers are taken as evidence of inarticulateness, insecurity, sloppiness, and an unwillingness to assert a opinion (Eckert, 2000). Preadolescents are highly engaged in narration, and as they move towards adolescence, discourse markers and rising intonation, become an important part of constructing and negotiating identity, beliefs, and the social order (Eckert, 2004).

2.3.2 Socio-Cultural Approaches to Moral Development and Language

Many researchers have argued that moral reasoning is the result of development that can be verbally expressed (Bhatia, 2000; Tappan, 1991, 1997; Walker, 2000; Vygotsky, 1934/1997). Meaning making involves language and an understanding of the cultural context in which language is used (Bruner, 1997). The interaction between individuals and their social, cultural, historical and institutional contexts was central to Vygotsky's (1934/1997) theory that understanding how knowledge develops in socially meaningful ways requires an understanding of its social and historical origins, and of how that knowledge changes. To Vygotsky, speech and thought developed along separate lines. Speech is nonverbal at first, and only later does verbal thought emerge as the child gradually internalizes the language (Bruner, 1997). Thus, to

Vygotsky, thinking develops from the social level to the individual level. Vygotsky emphasized that language is not just a means of expression, but also has an important function as an "instrument of thought" and a tool to solve problems (Vygotsky, 1962, p. 19-20). He writes:

> "Thus our schema of development - first social, then egocentric, then inner speech - contrast both with the traditional behaviorist schema - vocal speech, whisper, inner speech - and with Piaget's sequence - from nonverbal autistic thought through egocentric thought and speech to socialized speech and logical thinking. In our conception, the true direction of the development of thinking is not from the individual to the socialized, but from the social to the individual."

A fundamental difference in Piaget's and Vygotsky's theories was the direction of development. According to Vygotsky, Piaget sees the development of thought as "gradual socialization of deeply intimate, personal, autistic mental states. Even social speech is represented as following, not preceding, egocentric speech" (Vygotsky, 1962, p. 18). Egocentric speech diminishes with the disappearance of egocentrism and onset of social speech.

More recent work (Bosacki, Zopito, & Dane, 2006; Goodwin, 2002, Tappan, 1991) has examined how morality is represented and expressed through language. Tappan (1997) posed several empirical questions about the syntactic and semantic characteristics of inner speech. Tappan suggested that a sociocultural perspective on moral developmental would assume that 1) moral functioning is mediated by language, 2) such mediation occurs in private or inner speech, 3) processes of social communication give rise to moral functioning, and 4) moral development is shaped by social, cultural, and historical context.

Bhatia (2000) argued that most researchers analyze children's verbal reports only as a means to understand what the data can tell us about cognition and morality, without looking into how language itself might be playing an important role in children's moral development. According to Bhatia (2000), language in moral development is considered through its representation of children's underlying cognition and rarely through its meaning making functions.

There are, however, a few exceptions. Wright & Bartsch (2008) and Snow (1987) examined children's naturally occurring use of moral language. Wright & Bartsch (2008) conducted preliminary investigations on transcripts of child-adult moral discussions of how two young children (ages 2.5 to 5 years) used 33 moral words (e.g. right/wrong, help/hurt, good/bad) in moral contexts as well as what the children referred to (e.g. rules/standards) in an active or passive role. Wright & Bartsch (2008) found that children were active participants in discussions of moral issues with the adults. The children also demonstrated an early moral sensitivity to moral issues regarding disapproval and reward/punishment and a basic understanding of normativity.

Another literature on universal moral grammar is building upon an analogy between language and moral judgment, describing the nature and origin of morality by using concepts and frameworks similar to those used in the study of generative linguistics (Dupoux and Jacob, 2007; Hauser, 2006; Mikhail, 2007). Hauser (2006) argues that humans are endowed with a moral faculty, analogous to the language faculty, which delivers intuitive judgments of right and wrong based on unconsciously operative and inaccessible principles. Moral judgments are delivered on the basis of a conscious, deliberate, rational cognitive process of accessing principles to justify our actions. Universal moral grammar is organized around five main

points, including distinctions between 1) competence and performance, 2) perception and production, and 3) descriptive and explanatory adequacy (Mikhail, 2007). Dupoux and Jacob (2007) criticized the analogy arguing that moral decision-making is an evaluative process, rather than the generative process that language is.

2.4 Relational Aggression and Language

Relational aggression represents an excellent example of how girls use language in moral conflicts where gender is pronounced (Eckert & McConnell-Ginet, 1992). It is, however, cautioned that social aggression is not the "exclusive province of girls." Girls may engage in more relational than physical aggression than boys (Crick & Grotpeter, 1995), but it may not be true that they engage in more social aggression or that it is less hurtful (Underwood, 2003).

As verbal activity heightens, both sincere and sarcastic compliments grow more frequent between girls in adolescence (Eckert, 2003). The practice of offering sincere compliments "adds value to the receiver as evidence of her quality, and to the giver as evidence of her possession and exercise of cultural knowledge" (Eckert, 2003; p.386). Sarcastic compliments are means of flagging others' transgressions, while enforcing social hierarchies and boundaries. Girls' verbal teasing is a form of social control that arises in childhood and continues through high school (Eder, 1993; Garbarino & deLara, 2002; Mills & Carwile, 2009).

Mixed findings have emerged concerning the associations between verbal reasoning and indirect or relational aggression. Several studies have shown negative correlations between indirect aggression and language skills or verbal reasoning (e.g. Estrem, 2005). Estrem (2005) argues that the interaction of language and gender negatively impacts relational aggression. Preschool children with higher expressive language skills demonstrate greater relational

aggression because they possess the verbal and cognitive skills to manipulate and influence their peers. Children exhibited greater relational aggression as expressive language (the ability to respond efficiently and appropriately) decreased, and girls' physical aggression increased as receptive language (the ability to understand language and social cues) decreased. Guralnick, Connor, Hammond, Gottman & Kinnish (1996) provided additional evidence that children with inadequate language skills may become more aggressive or isolate themselves.

Other studies have demonstrated positive relations between relational aggression and language (Bonica et al., 2003; Kaukiainen et al., 1999). Research has found that verbal sophistication may facilitate relationally aggressive strategies (Bonica et al., 2003; Crick et al. 1997; McNeilly-Choque, Hart, Robinson, Nelson, & Olsen, 1996). Bonica et al. (2003) was the first study to examine whether language development was associated with relational aggression in preschoolers, and whether gender moderates this relation. They concluded that the relationship between relational aggression and language was robust across gender, even when controlling for age (Kikas, Peets, Tropp & Hinn, 2009). Participants with higher levels of abstract verbal reasoning are able to more effectively manipulate relationships through skillful planning, consideration of long-term consequences, and comparing alternatives. As a result, they are able to select more appropriate ways of handling the conflicts (Crick & Dodge, 1994; Kikas et al., 2009). Positive relations between indirect aggression and verbal skills could indicate that adolescents with sophisticated verbal reasoning skills may choose a more covert form of aggression. However, there is some evidence that indirect aggression can also be associated with impulsive and hyperactive behaviors, rather than with behavior requiring deliberation (Brown, 1998; Zalecki & Hinshaw, 2004).

Several researchers explicated the relationship between the development of relational

aggression and language. Crick et al. (1999) contend that the emergence of relational aggression may be related to language development. Kikas et al. (2009) notes that overt aggression is gradually replaced by more covert forms, attributed to the development of verbal reasoning and social skills (e.g., Björkqvist, Osterman, & Kaukiainen, 1992).

Brown (1998) found that girls, 8, and 9 years of age generally impulsively respond with strong feelings when they are hurt or treated unfairly. Brown (1998) does argue that these findings reflect "hallmarks of healthy anger" as " girls' anger often quickly dissipates quickly; relationships have a few-flowing quality-girls move together and apart, between harmony and conflict, almost daily (p. 12). Brown (1999) also points out that these strong feelings of anger and frustration often lead to aggression that is likely to gradually become more indirect through childhood. Direct aggression seems to markedly increase at the age of 11, however, when older girls report this behavior more than younger girls. A similar pattern occurred for girls' expressions of sadness and acts of masking emotions, particularly anger. One might interpret increased directness and masking of anger as indicating a gradual increase in their capacity to control irrational impulses and mitigate early aggressive behavior.

Results highlight the importance of investigating factors associated with relational aggression. Because relational aggression requires an understanding of what would socially and emotionally harm a child, relational aggression may be facilitated by accuracy in judging emotion. In support of this argument, Cole, Usher, and Cargo (1993) demonstrated that strong verbal skills were predictive of emotional accuracy in preschoolers.

The literature on language use and relational aggression is sparse, with the exception of a few qualitative studies that collected language data through ethnographic conversation analyses (Goodwin, 2002). For example, Goodwin (2002) provided an ethnographic

examination of the naturally occurring speech girls use in their everyday conversations. More specifically, Goodwin (2002) considering how girls practice forms of social exclusion and ridicule in their spontaneous play, focusing on following a group of girls from fourth through sixth grade. By examining actual instances of negotiated interaction, she concluded that acts of relational aggression among girls are built through both overt (insults and humiliation to the victim) as well as covert (e.g. exclusion, looks, byplay) verbal means.

Similarly, Stowe, Arnold, & Ortiz (1999) explored whether there are differences in how language development is related to disruptive behavior and peer rejection in both girls and boys. They found that the relationship between the quality of peer relationships and language skills (e.g. verbal fluency, vocabulary) was weaker for girls than for boys.

Research has found it difficult to determine variability in adolescent girls' use of linguistic variables development occurs in situations of relational aggression because most studies, to date, have been cross-sectional and limited in duration or age-range. Longitudinal studies of language use in adolescence are rare, but a few longitudinal studies are appearing that have either examined language development over a relatively long period of time in adolescence.

Sunwolf & Leets (2003) explored why the voices of group members are "paralyzed", preventing adolescents from enacting their own social moral reasoning. Sunwolf & Leets (2003) examined the social dynamics that result when an adolescent peer group member disagrees with the social exclusion of others, but decides to remain silent. Most of the participants (79.8%) did report withholding disagreement during peer-group exclusion. Group dynamics (32%) and the participants' social fears (29%) were reported significantly more often than all the other reasons adolescents shared for feeling paralyzed in communicating

disagreement. The reasons were rarely based on qualities or behaviors of the rejected child (8%). Other participants offered accounts that demonstrated a perception that the negative social stigma associated with certain group outsiders might also become attached to someone who protested group exclusion (defending a rejected outsider). Participants described choices grounded in the fear of being ridiculed or losing positive social reputations. Participants explained that they remained silent so they would not be perceived as "different" or "uncool."

Kikas et al. (2009) examined age and gender differences in the frequency of verbal and indirect aggression in fifth, seventh, and ninth grade students. They analyzed the relationships between different forms of aggression, verbal reasoning (deduction skills and an ability to form abstract relations among concepts), and normative beliefs, and whether these relations would be moderated by grade. They found that normative beliefs and verbal reasoning had independent effects on direct and indirect aggression, and that some effects differed by grade. The associations between verbal reasoning and indirect aggression were negative in grades five and nine, and non-significant in grade seven. The negative effect of verbal reasoning was highest for physical aggression, and lowest for indirect aggression.

These studies discussed above, point to an interesting area where the relationship between rational and intuitive language in relational aggression could be productively investigated.

2.5 Summary of the Literature

This chapter briefly touched on research from a wide range of literatures, including studies of moral intuition and rationality in moral judgment, adolescent language, and relational aggression. I discussed the strengths and weaknesses of each approach, and argue that several literatures seem to be converging on seeing a wide range of cognitive processes, including

moral judgment, as dual processes, involving both intuitive judgments especially when proximity and affect are involved, and reasoned judgment, especially when moral intuitions or moral principles conflict.

There is nevertheless much to build on. Sociolinguistic and psycholinguistic studies have ignored the role of intuition and instead focused on gender specific emotional language. However, Eckert & McConnell-Ginet (Eckert, 2000, 2003, 2004; Eckert & McConnell-Ginet, 1995; Eckert & McConnell-Ginet, 2003) have discovered pronounced phonological and grammatical variation in adolescents' language use.

Research on adolescents' language use in situations of relational aggression has also begun to emerge (Goodwin, 2002; Kikas et al., 2009; Stowe, Arnold, & Ortiz, 1999) with mixed findings concerning the associations between language skills and relational aggression. However, a corresponding literature on language production and morality has not yet been developed, much less within situations of relational aggression. Theoretical approaches have been taken to explore how morality is represented and expressed through language, but there is little empirical documentation about the nature of moral language.

We have no adequate theoretical framework or methodology examining whether specific language variables are linked to judgments of morality, although there clearly are moral problems in relational aggression to which they would be relevant. The literature does not yet have well-developed understandings of the relationships and interaction between intuitive or rational processing or the language a subject or respondent will use to discuss their decisions.

The interplay among intuitive and rational processes in morality is becoming increasingly tractable, particularly with dual process theories. Dual process theories have

provided clear definitions and descriptions of intuitive and rational decision-making processes. This topic is now being fruitfully studied, drawing upon theories and methodologies that require collaboration among psychologists, educators, linguists, and neuroscientists. The LIWC provides a well-developed methodology for identifying and quantifying features of language usage. This thesis will integrate these components into a methodology for identifying rational and intuitive language use among adolescent girls discussing real life and hypothetical dilemmas involving relational aggression. It will then test hypotheses on differences in the expected use of rational and intuitive language in real versus hypothetical dilemmas, and on changes in usage as girls progress from the fifth to the seventh grades.

Chapter 3: Methodology

This chapter describes 1) Schrader's GRLS longitudinal study and four of the instruments used to collect the data; 2) the present study's research questions and hypotheses; 3) the methods used to transcribe the data and prepare it for analysis using LIWC2007 (Linguistic Inquiry and Word Count) software; 4) the procedures used to classify language output from the LICW analysis for analysis using the proposed Moral Language Use Evaluation Tool (MLUET); and 5) the assumptions identifying language uses derived from dual processing models that will constitute rational and intuitive language use in using the MLUET to test the hypotheses.

3.1 Data from the Schrader GRLS Project

Schrader's GRLS project explored how girls view relational aggression, structuring the issue as a moral one. It examined aspects of relational aggression, including definitions of aggression, roles, school context, peer groups, social influences, and friendships/peer relationships. It also examined psychological development: the sense of self, moral development, metacognitive development, and emotional development of young females.

3.1.1 Participants

The data analyzed for this study was collected from the transcribed interviews of girls who volunteered to participate in Schrader's GRLS project. The participants in this study consisted of a cohort of female students who were in fifth grade the first year of the study (2006), and who were followed longitudinally. This analysis will span from their last year of elementary school (grade five) to their last year of middle school (grade seven). The students were interviewed 3 times in the first year, and 4 times subsequently, each spring. The participants' approximate ages ranged between 10 and 13 years old at the time of data

collection. Data from year 4 were not analyzed because the transcripts had not been completed at the time of this analysis.

The sample was self-selected, after extensive recruitment efforts of the entire population of girls in one school district in upstate New York. The final recruited sample consisted predominantly of white, non-Hispanic and middle class pre-adolescent girls, despite efforts to recruit diverse girls from the entire population of the school. All participants spoke English as their first language.

School Context

The adolescent female participants were a convenience sample, recruited from a public elementary school located in a small city in the Northeastern United States, with a population of approximately 30,000. The district covers an area of 155 square miles and has eight elementary schools, two middle schools, one high school, and one alternative school (grades 6-12). There were approximately 5,500 students in 2010, of which 69% were White/non-Hispanic, 13% Asian, 12% African American, and 5% Hispanic. The school district serves 4% English Language Learners, and 19% of students are eligible for special needs services. Only 29% of students are eligible for free or reduced-price lunch programs compared with the state average of 44%. Approximately 500 teachers work in the district. The student-teacher ratio in the district is 12 students for every full-time teacher, compared to a state average of 13 students per full-time teacher.

3.1.2 Instruments

The data for this secondary analysis were select components from a longer interview protocol for Schrader's Girls Relational-Aggression Longitudinal Study (GRLS) that was designed to evaluate both abstract, distal and close, personal moral, and relational aggression

situations. Girls' responses to the following four instruments within Schrader's protocol were examined: Judy's dilemma from the Moral Judgment Interview (Colby & Kohlberg, 1987), a Metacognitive Interview (Schrader, 1988), a Real Life Interview (RLI), and a Hypothetical Relational Aggression Scenario Interview (RAI). See Appendix A for the entire Interview Protocol.

Interview I: Part A. Moral Judgment Interview (MJI)

Form B, Dilemma II: Judy, was used from the Moral Judgment Interview (MJI) (Colby & Kohlberg, 1987) to explore the language used in girls' moral reasoning. (see Appendix A). Consisting of 21 questions, the MJI elicits a participant's stage of moral reasoning in Kohlberg's moral development stage theory, his or her interpretation of the reasoning and socio-moral perspective and documents how these are used to make and justify moral decisions (Colby & Kohlberg, 1987).

The MJI (Colby and Kohlberg, 1987) has been widely used in moral judgment research. It consists of a series of hypothetical moral dilemmas that focus on a variety of moral conflicts. The reliability and validity of the MJI as a measure of moral development have been well established (Colby & Kohlberg, 1987). Reasonable internal consistency (Dawson, 2002) and high inter-rater and test-retest agreement rates (Colby and Kohlberg, 1987) have been reported for the MJI. The use of one dilemma only for stage scoring has not been validated; the MJI is to be used for stage scoring using all three dilemmas, however stage scoring is not the purpose of the present analysis.

In the hypothetical situation used for this research, the conflict revolved around Judy, a 12 year-old who had to decide whether to tell her mother that her sister lied, or keep a promise to her sister. Participants are asked what they thought was the right thing that Judy ought to do

in this situation, and to provide justifications for their responses. Participants are asked to respond to probing, open ended questions such as: Should Louise tell their mother that Judy had lied about the money or should she keep quiet? Why or why not? Is it important to keep a promise to someone that you don't know well and might never see again? Why/why not? This probing of participants' thinking was designed to generate adequate material for scoring by eliciting participants' the moral issues, norms and elements used in her moral thinking that would assist the scorer in assessing cognitive stages of moral reasoning.

Interview I: Part B. Metacognitive Interview (MCI)

The Metacognitive Interview was adapted from Schrader (1988), which explores how one thinks about one's thinking about moral decisions. Comprised of nine questions, with follow-up probes, the participants are asked to reflect on their thinking that they engaged in while answering one hypothetical dilemma of the MJI; in this case, Judy's dilemma. It then asks similar questions asking for reflection on thinking processes when answering the questions from the Moral Judgment Interview (described above). Examples of interview questions include: Thinking back over the dilemma I just read about Judy and Louise, how did you know how to approach the problem or how to think about it? How did you know to do that? Were you aware of what you were doing at that time? How did you know what to consider? What were the best things to consider? How did you know when the dilemma was resolved, or when you reached an adequate solution?

Interview II: Real Life Interview (RLI)

The RLI is comprised of 23 questions, which were adapted from Gilligan's Real Life Interview (Gilligan, 1982), and to which Schrader added questions to probe for Rest's Four Component Model of moral functioning (Rest, 1983)--which includes: moral sensitivity, moral

judgment, moral motivation, moral character--and the metacognitive questions, as above. Participants are asked to describe a real-life dilemma they have experienced, and their response to this dilemma. The Real Life Interview also includes questions reflecting on metacognitive awareness of thinking during the real life situation. The interviews then ask a series of questions that vary and extend the moral and metacognitive parameters of the dilemma. An example of such questions include: Describe a situation of girls being mean to each other that you know about? What kinds of things did you think about in dealing with the situation? Was there something that you could see as being right or wrong to do in that situation? What was it?

Interview III, Part A: Hypothetical Relational Aggression Interview (RAI)

Schrader (2005) developed a hypothetical relational aggression dilemma to examine investigate girls' definitions, perceptions, and experiences of relational aggression from a moral, emotional, and self-developmental point of view. Part A presents a hypothetical scenario of relational aggression (21 questions) involving a situation of exclusion between four female adolescent friends. In this hypothetical dilemma, participants are asked the following questions: Do you think this [scenario] is relational aggression? Why/why not? Was this the right thing or a good thing to do? Why/why not? What should have and could have been done differently here? This dilemma is a hypothetical dilemma only in so far as it is not one that the girls generate; the dilemma itself is based upon a compilation of real life experiences that girls have faced, but is presented in an abstract way to see if there is a difference in thinking, judgment, and cognitive processing in self-reported versus other-presented (abstract, for them) situations.

Interview III, Part B: Roles

In this part of the interview protocol, participants are asked to identify and discuss their experiences with different real-life roles where there is aggression among girls. Participants discuss their experiences as a bystander (15 questions), victim/target (18 questions), and an aggressor (14 questions) in an encounter they recall of an actual experience in their lives. A participant describing her experience as a bystander is asked the following questions: What happened? Why did you do that? What were you hoping would come out of what you did? How did you respond? Would you do something that again--why/why not?

In summary, the data sources for this analysis were parts of a longer interview protocol that Schrader designed to evaluate both abstract, distal moral and relational aggression situations as well as close, personal moral and relational aggression situations. Given these two types of problems, it would be important to discern if people produced and used moral language differently in the different moral situations (real versus abstract), and if that was related to intuitive versus rational language, and if that language changed based upon what role a girl discussed (bully, victim, bystander).

3.1.3 Procedures

Permission to conduct the study was obtained from the Institutional Review Board at Cornell University prior to any data collection, the School District Offices, the principals, and the teachers. Parent consent and child assent forms were utilized (See Appendix B).

Participants were recruited in the spring 2006 from one elementary school in the above-described school district. All female students in the designated school were invited to participate in the study. Recruitment speeches were given in assembly presentations held in classrooms during homeroom time. The girls were given general information about the study,

and opportunities to discuss it and ask questions.

Study summaries, participation forms, child assent forms, and parent consent forms were then distributed (See Appendix B). The girls were asked to fill out their participation and assent forms indicating whether or not they wished to participate, fold them in half, and place them in a box as they left the room. This would promote confidentiality if the girls so desired, since all girls completed a form and submitted it. All girls were given the parent consent forms, and were asked to return them the next day to the guidance office or their homeroom teacher. If the forms were not returned after the child signed an assent form, the child was discretely asked to bring in the parental form.

Before collecting interview data, graduate and undergraduate research assistants were familiarized with the questionnaires and instructed in the data collection and interview procedures. Data collection began immediately after both the forms were returned from a parent and girl. The data collection process for interviewing participants, designed to be a combination of classroom observations and semi-structured interviews, began with the first round of student interviews. Judy's dilemma from the Moral Judgment Interview (Colby & Kohlberg, 1987), Metacognitive Interview (Schrader, 1988), a hypothetical relational aggression interview (RAI), and Real Life Interview (RLI) were administered individually to each participant, audiotaped with permission, and transcribed verbatim by someone who did not interview the girl (Appendix A). The interview duration was about a total of one hour for elementary school participants, divided into three time segments for the first year of the study, and four segments for each subsequent year. Each interview segment, which was administered by the researcher or the researcher's assistants, took from 20-45 minutes, with the average interview lasting 20 minutes for the younger grade, and 35 minutes for the older grades.

Interviews were conducted in private rooms or on school grounds, depending on available space and the participants' preferences. Participants received a snack and beverage during the interviews. Students were also given small, age appropriate gifts, such as decorative notebooks, beauty products, and hair accessories, for their participation.

Table 1 below indicates the participants' completed and transcribed interview data. Missing interviews resulted either from technological issues (e.g. recorder malfunction) or scheduling issues. All participant data was included in individual analyses where available. No participant was excluded from one analysis if their data were missing some other portion of the complete interview protocol (see, for example as is Participant 2 in the chart below).

Table 1: Analyzed Portion of Interviews by Participant and Year

Participants	Year 1					Year 2					Year 3		
Participant Number	MJI	McI	RLI	RAI A	RAI B	MJI	McI	RLI	RAI A	RAI B	MJI	McI	RLI
2	X	X				X	X	X	X	X	X	X	X
3	X	X	X	X	X	X	X	X	X	X	X	X	X
4	X	X	X			X	X	X	X	X			X
5	X	X	X			X	X		X	X	X	X	X
6	X	X	X	X	X	X	X		X	X	X	X	X
7	X	X	X	X	X	X	X	X	X		X	X	X
8	X	X	X	X	X	X	X	X	X	X	X	X	X
9	X	X	X	X	X	X	X	X	X	X	X	X	X
10	X	X	X	X	X	X	X	X			X	X	X
11	X	X	X	X		X	X	X	X	X	X	X	X
12	X	X	X	X	X	X	X	X	X	X	X	X	X
13	X	X	X	X	X	X	X	X	X	X	X	X	X

14	X	X	X	X	X	X	X	X	X	X	X	X	X
15				X	X	X	X	X	X	X			X
16	X	X	X	X	X	X	X	X	X	X	X	X	X
Total	14	14	13	12	11	15	15	13	14	13	13	13	15

3.2 Methodology for the Current Study: Moral Language Use in Adolescent Girls

3.2.1 Research Objectives

The overall aim of this research project is to analyze girls' moral language about relational aggression, focusing on 1) the use of rational and intuitive language, 2) girls' speech production patterns in the way they verbally express their moral decisions when resolving relational aggression conflicts, 3) developmental changes in these two components of language over time, and 4) building a methodological approach that will enable researchers to empirically distinguish rational and intuitive language in moral decision-making.

3.2.2 Definition of Concepts and Terms

Several terms will be used throughout this analysis. Since I am developing a new analytical methodology for employing moral language production and use to examine intuitive and rational language, key terms and concepts must be defined.

Moral Language

Moral language is language that is used within the moral domain, and may include judgments of goodness or rightness of a proposition or action, or may be a reference to the character of or motivation for action. It can suggest prescription or proscription. In this context, moral language is any language applied to relational aggression situations, and the

moral dilemmas, discussed in the data source for this analysis. Thus, all language analyzed here is considered moral language.

Intuitive and Rational Language Use

Based upon dual-process models of moral reasoning that propose one process that is automatic, subconscious, and intuitive, and another that is conscious, deliberative, and rational, I will devise a measure of the degree of non-conscious, intuitive language and of conscious, reflective rational language that can be used to examine adolescent girls' responses to moral dilemmas. I will define language categories accordingly. Specifically, *'intuitive' reasoning* will be defined as an affectively driven implicit, tacit, rapid, effortless instinctive, and automatic process based on prior beliefs and experiences involving little or no conscious deliberation or awareness. *'Rational' reasoning* will be defined as: a slow, sequential, analytical, deliberate, explicit, affect-free, and primarily conscious process that requires effort and can be controlled.

3.2.3 Research Questions and Hypotheses

This analysis of the GRLS dataset for grades five, six, and seven (collected in 2006-2009) centers on one primary question: Does language change in its expression of moral reasoning from fifth through seventh grades when adolescents discuss situations of relational aggression? If it does change, then how does it do so?

This question will be addressed in a series of sub-questions to examine how, more precisely, girls' moral language changes. These sub-questions and my hypothesized speculated results presented below:

1. What types of language do girls use, and what is the extent of that usage?

   I hypothesize that adolescent girls use both intuitive and rational language when discussing moral situations of relational aggression. I hypothesize that they use more

intuitive language than rational language when discussing relational aggression and the moral situations under study.

2. Are there differences in the extent of use of intuitive and rational language as adolescent girls move from fifth, to sixth, to seventh grades?

   I hypothesize that adolescent girls' use of intuitive language 1) either decreases or stays the same with each successive grade in school, and 2) rational language increases with each successive grade in school. In essence, either the girls are adding rational language tools to their repertoire of language and thought, or they are replacing intuitive language use with these more logical-reflective processes.

3. Which types of moral language do they use in the various roles of relational aggression, specifically, the bully, victim, and bystander roles?

   Victims will be using more intuitive language than aggressors. Aggressors and bystanders will be using more rational language than victims.

4. Which types of moral language do they use in the various types of relational aggression scenarios--real life versus hypothetical dilemmas?

   I hypothesize that intuitive and rational language vary across real life and hypothetical dilemmas. I expect that intuitive language will be more strongly correlated with real life dilemmas. Rational language will be more strongly correlated with hypothetical dilemmas.

The underlying assumption in these hypotheses is that rational language is more developed, or more sophisticated, than intuitive language, so it develops later with other presumed developmental correlates. Adolescent speech has been described as largely egocentric, implicit, and emotional (Eckert, 2003), while adults more commonly use

descriptions and arguments (Nordberg, 1984). The developmental question of whether or not intuitive and rational language correlates with moral stage development is another question worthy of investigation that is not examined here. We know from extant literature (See Chapter 2) that moral reasoning does develop during this period; therefore if there are no changes in language, then language cannot be a reflection of moral reasoning. If, indeed, if language changes from more intuitive to more rational, and if that change is correlated to moral stage change or other form of social-cognitive or cognitive development, there could be implications for developing educational programs that focus on the development of moral language as perhaps a precursor for moral stage development; or vice versa. However first we need to explore if, and how, moral language changes over time. To disconfirm my hypotheses, there would either have to be no advancement in any of the language production areas, or there would have to be an increase in intuitive language and a decrease in rational language over development.

It is also expected that victims will use more intuitive language because they perceive the aggression to be more damaging. Victims will have directly experienced direct effects of aggression with stronger affective reactions and emotions (e.g. self-blame, anger) due to perceived negative intentions from the bystander and bully. In order to reduce the moral culpability of their actions and deny responsibility, bystanders and aggressors would use more rational language to minimize or normalize the effects of aggression with self-serving justifications or excuses. Aggressors and bystanders may also avoid or experience difficulty expressing pro-social emotions, particularly empathy or compassion for the victim.

More intuitive language will be used in real-life dilemmas because they are more personally relevant for participants, requiring less deliberation and evoking stronger emotions.

Hypothetical dilemmas are more likely to engage rationality because they are impersonal situations and thus could result in lower level of moral conflict. These claims are in line with work by Greene et al.'s (2001) finding that personal moral dilemmas produced increased activity in brain areas associated with emotional processing when compared with impersonal and non-moral dilemmas that produced increased activity in areas associated with working memory.

Table 2: Research Questions, Hypotheses, and Analyses

Research Question	**Hypothesis**	**Interview Segments Used in Analysis**	**Language Production Level Analyzed**	**Analysis Tool Used**
1. What types of language do girls use, and what is the extent of that usage?	Adolescent girls use both intuitive and rational language when discussing moral situations of relational aggression. I hypothesize that they use more intuitive language than rational language in their verbal expressions.	1.A. MJI-Judy 1.B. MCI 2. RLI 3.A. RAI: Cassie 3.B. RAI: Roles	Lexicon Syntax Productivity Semantics General performance	LIWC MLUET SPSS
2. Are there differences in the extent of use of intuitive and rational language as adolescent girls move from fifth, to sixth, to seventh grades?	Intuitive language use either decreases or stays at the same level with each successive grade in school, and rational language increases with each successive grade in school.	1.A. MJI-Judy 1.B. MCI 2. RLI 3.A.RAI: Cassie 3.B.RAI: Roles	Lexicon Syntax Productivity Semantics General performance	LIWC MLUET SPSS

3. Which types of moral language do they use in the various roles of relational aggression, specifically, the bully, victim, and bystander roles?	Victims use more intuitive language than aggressors and bystanders; Aggressors and bystanders will be using more rational language than victims.	3.B. RAI: Roles	Syntax Productivity	LIWC MLUET SPSS
4. Which types of moral language do they use in the various types of relational aggression scenarios--real life versus hypothetical dilemmas?	Intuitive language is strongly correlated with real life dilemmas and the victim role. Rational language is strongly correlated with hypothetical dilemmas and the aggressor role.	*Hypothetical* 3.A. RAI: Cassie *Real Life* 3.B. RAI: Roles	Lexicon Syntax Semantics General performance	Qualitative Content Analysis--MLUET

3.2.4 Research Design

This present study is primarily a quantitative analysis, using a newly developed methodology I designed for this dissertation that incorporates a strong theoretical description of intutive and rational language and a strong quantitative linguistic analyses. It is then used to examine how girls construct language to conceptualize their thoughts, roles, and behaviors when talking about relational aggression situations--defined here as a moral issue. The independent, predictor variables are age (fifth, sixth and seventh grade)--which implicates developmental language level, the type of interview (hypothetical or real-life scenario), and role (bully, victim, bystander). The dependent variable is participants' language outcome defined in terms of four language production areas: lexicon, syntax productivity, semantics, and

general processing or performance. These language outcomes were assessed through use of the MLUET (developed for this analysis, based on the LIWC, as well as a qualitative content analysis of language as coded using an adaptation of Selman & Feigenberg's (2010) coding system and other relevant research (e.g. Haidt & Hersh, 2001).

3.2.5 Linguistic Inquiry and Word Count (LIWC2007)

The Linguistic Inquiry and Word Count (LIWC2007) (Pennebaker, Booth, & Francis, 2007) text analysis software program calculates the differences in the categories of words (e.g. emotional, cognitive, self-references) in individuals' written or transcribed verbal text in over 80 language categories (Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007). The LIWC program has a processing component and the dictionary of 45,000 words and word stems. Pennebaker, Booth, & Francis (2007) refers to word categories as dictionary words arranged into groups that refer a particular category (e.g., first person pronouns). The processing component examines each word in a given text file and then compares it with the LIWC2007 dictionary file. For example, if LIWC is analyzing the text for a participant, the program would search for the word "her" and check to see if it was in the dictionary. The word "her" would then be coded as part of associated categories (e.g. function word, pronoun, and third-person singular pronoun). The LIWC increments all LIWC categories and the percentage of that each category was used by the participant. For example, the findings could indicate that 6.54% of all the words in a transcript were pronouns and 2.33% were third-person singular pronouns. The LIWC is described in detail here, since outputs from the LIWC are essential for the MLUET.

LIWC2007 Internal Reliability and External Validity

The LIWC text analysis program was initially validated for content and construct validity (Pennebaker & Francis, 1992; Pennebaker, Francis, & Booth, 2001) across 80 word categories, suggesting that LIWC does successfully measure a number of positive and negative emotions, cognitive strategies, and other various language elements (Tasczik & Pennebaker, 2010). Judges evaluated which words were suited for which categories. Groups of three judges independently rated whether each word candidate was appropriate to the overall word category. Inter-rater reliability discrimination of category word has ranged from 86% to 100%, depending on the dimension being assessed (Pennebaker et al., 2001), suggesting content validity.

Pennebaker and Francis (1996) conducted one of the first LIWC validity tests in which freshmen college students wrote about their first-year college experience or superficial topics. People were randomly assigned to write either about deeply emotional topics emotions and thoughts about emotional writing or about non-emotional writing. Four judges rated the participants' essays on various emotional, cognitive, content, and composition dimensions designed to correspond to selected LIWC Dictionary scales.

To assess construct validity, four judges rated 210 essays on several LIWC dimensions (Pennebaker, Mayne, & Francis, 1997). Using LIWC output and judges' ratings, Pearson correlational analyses were performed to test LIWC's external validity. Moderate to strong correlations (0.22–0.75) between LIWC and judges' global ratings of written essays were found for most emotion categories (Pennebaker et al., 2007).

Pennebaker et al. (2007) determined the degree to which people use words across a select group of text files and then calculated the intercorrelations of the word use. The internal

reliability statistics are based on the correlation between the frequency of each word in a particular category with the sum of the other words in the same category (Pennebaker et al., 2007). All alphas were computed on a randomly selected sample of 2800 text files (Tausczik & Pennebaker, 2010).

Table 4 shows the high correlation between the LIWC word count scales and judges' ratings. For example, the LIWC affective processes category, is composed of 915 words. for Internal reliability statistics indicate that alpha reliability ranges between .97 (binary) and .36 (raw). For a summary of all reliability statistics, see Pennebaker et al. (2007).

Table 4: LIWC2007 Output Variable Information (Pennebaker et al., 2007)

Category	Abbrev	Examples	Words in category	Validity (judges)	Alpha: Binary/ raw
Linguistic Processes					
Word count	Wc				
Words/sentence	Wps				
Dictionary words	Dic				
Total function words	Funct		464		.97/.40
Total pronouns	Pronoun	I, them, itself	116		.91/.38
Personal pronouns	Ppron	I, them, her	70		.88/.20
1st pers singular	I	I, me, mine	12	.52	.62/.44
1st pers plural	We	We, us, our	12		.66/.47
2nd person	You	You, your, thou	20		.73/.34
3rd pers singular	Shehe	She, her, him	17		.75/.52
3rd pers plural	They	They, their, they'd	10		.50/.36
Impersonal pronouns	Ipron	It, it's, those	46		.78/.46
Articles	Article	A, an, the	3		.14/.14
[Common verbs][a]	Verb	Walk, went, see	383		.97/.42
Auxiliary verbs	Auxverb	Am, will, have	144		.91/.23
Past tense [a]	Past	Went, ran, had	145	.79	.94/.75
Present tense [a]	Present	Is, does, hear	169		.91/.74
Future tense [a]	Future	Will, gonna	48		.75/.02
Adverbs	Adverb	Very, really, quickly	69		.84/.48

Prepositions	Prep	To, with, above	60		.88/.35
Conjunctions	Conj	And, but, whereas	28		.70/.21
Negations	Negate	No, not, never	57		.80/.28
Quantifiers	Quant	Few, many, much	89		.88/.12
Swear words	Swear	Damn, piss, fuck	53		.65/.48
Psychological Processes					
Affective processes	Affect	Happy, cried, abandon	915		.97/.36
Positive emotion	Posemo	Love, nice, sweet	406	.41	.97/.40
Negative emotion	Negemo	Hurt, ugly, nasty	499	.31	.97/.61
Anxiety	Anx	Worried, fearful, nervous	91	.38	.89/.33
Anger	Anger	Hate, kill, annoyed	184	.22	.92/.55
Sadness	Sad	Crying, grief, sad	101	.07	.91/.45
Cognitive processes	Cogmech	cause, know, ought	730		.97/.37
Insight	Insight	Think, know, consider	195		.94/.51
Causation	Cause	because, effect, hence	108	.44	.88/.26
Discrepancy	Discrep	should, would, could	76	.21	.80/.28
Tentative	Tentat	maybe, perhaps, guess	155		.87/.13
Certainty	Certain	always, never	83		.85/.29
Inhibition	Inhib	block, constrain, stop	111		.91/.20
Inclusive	Incl	And, with, include	18		.66/.32
Category	**Abbrev**	**Examples**	**Words in category**	**Validity (judges)**	**Alpha: Binary/ raw**
Exclusive	Excl	But, without, exclude	17		.67/.47
Perceptual processes[c]	Percept	Observing, heard, feeling	273		.96/.43
See	See	View, saw, seen	72		.90/.43
Hear	Hear	Listen, hearing	51		.89/.37
Feel	Feel	Feels, touch	75		.88/.26
Spoken categories					

		Er, hm, umm	8	.28/.23
Nonfluencies	Nonflu			
		Blah, Imean,	9	.63/.18
Fillers	Filler	youknow		

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In order to determine base rates of word usage and language variation across settings, Pennebaker and his colleagues collected random, diverse text samples from 72 studies in 28 University laboratories. Six classes of text from these studies were analyzed and compared that reflect 24,000 utterances and approximately 168 million words. These text samples that includes a wide range of text genres, ranging from including 714,000 internet web blogs from 20,000 individuals, observational studies, experimental essays, poetry, 209 American and British novels published between 1700 and 2004, 113 articles in the journal Science published in 1997 or 2007, and natural speech transcripts to examine the psychometrics of words. A diverse group of individuals were represented in these studies ranging from elementary school students to psychiatric prisoners. This makes the LIWC a valid and reliable tool upon which to base a moral language analysis tool.

3.2.6 Data Transcription and Preparation for LIWC Analysis

The data are drawn from electronic written transcripts of the complete interview exchange between interviewers and 15 girls. Audio files were available but the analyses were conducted on transcribed interview data. Interviews were transcribed by independent contractors or research assistants paid for by Schrader's GRLS project.

A reliability check of audio files against transcripts from the GRLS database was conducted by the transcriber after the data were transcribed. Since this is natural language data and therefore difficult to transcribe verbatim, a research assistant listened to 10% of 15 randomly chosen participants' oral recordings to assess reliability of transcription. Reliability

was required to be 80% or better. Inter-rater reliability ranged between 91%-100% agreement for the sample across the subset of data.

Research assistants modified the files by correcting each one for abbreviations (e.g. Mon instead of Monday), misspellings, and inappropriate word choice (e.g., "their" rather than "there"). These data were then subjected to coding and a series of analyses, as described below. For additional information on practices for transcription and management of language data see VCLA manual (Blume & Lust, 2011).

In order to prepare the collected linguistic data for coding and analysis using the LIWC, two undergraduate research assistants reviewed the LIWC2007 language and operator's manual and VCLA manual (Blume & Lust, 2011). After conducting a preliminary reading of the transcripts, they practiced analyses on sample text files from a different database to develop skills.

Analogue and digital tapes collected in the GRLS study were prepared as text files for LIWC2007 analysis according to the LIWC manual (Pennebaker et al., 2007). Responses to the interview protocol were within the same file, so the research assistants separated sorted each interview into separate files so that LIWC2007 could analyze each as a single writing sample data. The language text samples were separated into separate Word document (.doc) files by participant number, interview year, and interview type. The files were named in a systematic and anonymous way using a number to ensure confidentiality. Data files were saved using the following identification strategy:

[PARTICIPANT#] [YEAR#] [INTERVIEW TYPE] -- Participant1Year1MJI.doc

Interviewer questions were subsequently eliminated from the transcript, leaving only the participant's language available for analysis. The transcripts were then segmented by interview

questions so they would be prepared for analysis. This resulted in 318,629 words for analysis over 15 participants over all interviews of each participant and a total of 4840 words per sentence. Appendix C shows the number of words and number of words per sentence derived for each participant. Table 3 summarizes these variables by age group. These data constituted a corpus of elicited natural speech in the specific contexts of Schrader's Relational Aggression Interview Protocol in the selected participants from the GRLS study described in 3.1.1.

Table 3: Number of Words and Word Per Sentence for Grades 5, 6, and 7

		Word Count	Words Per Sentence
Grade 5	Mean	941.51	17.86
	N	106	106
	Total	99,800	1,896
Grade 6	Mean	1,129.14	15.58
	N	132	132
	Total	149,046	2,05
Grade 7	Mean	1,203.16	15.40
	N	58	58
	Total	1,203.16	69,78
Total	Mean	1,076.45	16.54
	N	296	296
	Total	16.35	4,840

Note: The Words Per Sentence variable is based on end-of-sentence markers such as periods and question marks. The means for the Word Count and Words per Sentence variables represent frequency totals averaged across the four interviews. The sample sizes (N's) in the tables represent the number of girls (participants) times the number of interviews completed.

3.2.7 The Moral Language Use Evaluation Tool (MLUET)

To analyze the above hypotheses, I needed to develop a tool, since no other methodologies are available that measure language production in the moral domain. I called this tool the MLUET--the Moral Language Use Evaluation Tool. This tool integrates components of language production with the use of moral language. This tool is designed to provide a means to evaluate several dimensions of language production, specifically with regard to its expression of intuitive and/or rational representations of moral reasoning.

The MLUET evaluates lexicon, syntax productivity, semantics, and general processing in this production, thus providing an intensive investigation of language performance. This was done in other language studies using the LIWC, as described below, and I utilized the LIWC outputs to directly examine rational and intuitive moral language production by applying the intuitive and rational categorization to lexicon, syntax productivity, and general processing outputs from the LIWC and supplementing by qualitative content semantic analyses. Specifically, the MLUET incorporates descriptive categories based on theories of moral reasoning which involve characterization of intuitive and rational forms of language with language production data.

In sum, the tool provides a format for coding and analyses of raw spoken language data so that they can then be converted to numerically based data to be interpreted and used by a researcher to evaluate hypotheses. This tool can be used on any oral language production data. On the basis of their analyses of a speaker's utterances, a researcher can evaluate linguistic knowledge in the moral domain in these two categories of intuitive and rational thinking. This tool can be expanded to include other moral concepts as well, but is limited here to intuitive and rational categories.

The MLUET analysis is conducted primarily on the basis of output derived from the LIWC (Linguistic Inquiry and Word Count Text Analysis Software) (Pennebaker, Booth & Francis, 2007). The MLUET extends the concepts of the LIWC to the study of moral language production through a combination of methods. The output variables of the LIWC were categorized as linguistic dimensions, psychological processes, and paralinguistic dimensions (See table 1). The MLUET reinterpreted this LIWC word classification into lexicon, syntax productivity, and general performance categories characterized as intuitive or rational language. A semantic language classification of moral justifications was added to the MLUET based on previous research (e.g. Selman & Feigenberg, 2010).

3.2.7.1 Rationale for the MLUET

As discussed, in detail, in the literature review, the psychology, education, and sociolinguistic literatures do not provide much information on how existing methods can be used to assess intuitive and rational language, as discussed earlier, in detail, in the literature review chapter. One of the reasons that morality and language have been treated as separately in research on relational aggression—even though researchers believe in their mutual relationship— could be connected to the methodological difficulties of identifying and testing experiences and values in language usage and morality. Theories of moral judgment could also differ greatly in their emphasis on reason or emotion due to variations in methodology. The outcomes could be largely determined by the method used (Monin, Pizarro, & Beer, 2007). For example, measures such the Accumulated Clues Task (Bowers et al., 1990) will typically elicit a quick, intuitive reaction while a Metacognitive Interview (Schrader, 1988) will elicit a participant's slow, deliberate reasoning.

Therefore, for this dissertation I devised a new approach to enable researchers to empirically distinguish the use of rational and intuitive language in narratives about moral decisions. I combined theoretical concepts of rational and intuitive processing as described by Haidt and others (e.g. Haidt, 2001; Selman & Feigenberg, 2010) and the LIWC, the analytic tool developed by Pennebaker, Booth, & Francis (2007). The LIWC uses word counts and other dimensions of language. For example, linguistic dimensions such as pronouns, articles, auxiliary verbs, and psychological constructs such as affect and cognition, as well as paralinguistic dimensions such as assents, fillers, and punctuation. The LIWC was developed to capture various emotional, cognitive, structural, and process dimensions in people's verbal and written narratives, and as such, is an important tool for understanding moral language. However, integrating these linguistic dimensions with a theoretically rich context of intuitive and rational moral thought makes it is possible to develop a deeper understanding of language and thought than can be achieved by looking at each dimension alone or in parallel. In doing so, I attempt to bridge the language and moral cognition gap in the field of moral psychology.

Dual Processing Theories

Dual-processing theorists outline two systems associated with cognitive processing in humans. The first, System 1, is generally described as innate, instinctive, and automatic instinctive behaviors that come about through implicit learning (Evans, 2003). I used System 1 as a means of categorizing adolescents' unconscious, holistic, rapid intuitive reasoning, and refer to this as "intuitive" reasoning. On the contrary, System 2 is characterized as a capacity that takes longer to develop, "permitting abstract hypothetical thinking that cannot be achieved by System 1" (Evans, 2003). I used System 2 as a means of categorizing adolescent girls language as "rational," where thought is defined as deliberate, slow, sequential, in-depth,

effortful, and systematic.

The dual processing approach and the proposed language-use methodology (the MLUET, described below) can provide the foundation for an initial framework for studying how people talk about moral decision-making and some of its developmental trajectories. Understanding how and when System 1 and System 2 reasoning is likely to be used in language is therefore critical for understanding how the full range of moral language can be adequately captured. This is a new approach to studying moral language, and therefore several issues have yet to be resolved, including the relative importance of each system, and the related question of how precisely the two processes may interact.

Dual-process formulations offer the most promising way for developing of an integrated account of how the unconscious mechanisms associated with intuitive processing interact with the cognitive mechanisms underlying conscious awareness. The dual processing framework offers a more integrated account of the nature and role of intuition than previous psychological literature, reviewed earlier, which has lacked a coherent conceptual framework in which to place intuition. In consequence, the concept has been used in an ambiguous and fragmented manner. Further, neither the psychological moral and linguistic literature has yet directly tested relationships between language use and moral judgment.

The dual processing model could benefit from methodologies that could be used to study the relationships between moral judgment and language use in intuitive versus rational thinking. Dual processing models have begun to identify conditions and problems that are more likely to tap into rapid, intuitive thinking, and more deliberate and conscious processes of reasoning. However, neither the dual processing literature nor psycho-linguistics have studied the language terms and uses associated with these processes systematically enough to permit

inferences about these decision making processes from participants' discussions of their moral judgments. Further, no studies have determined some regularity in the course of adolescent development language measures of syntax productivity, lexicon, semantics, and general performance.

Language use needs to be examined at numerous levels because construction of moral decision does not only take place in isolation at a single level or in one area of language production. Girls use different linguistic expressions in relational aggression situations and rely on multiple levels of language. It is thus important to understand how these different levels of language interact when girls discuss relational aggression situations over the course of development. The syntax productivity and lexicon categories are used to demonstrate the importance of individual words in moral language. Syntax is necessary for understanding the relationship between thoughts and words. Filler words and non-fluencies are particularly important for general performance, especially considering that up to half of all spontaneous speech utterances consist of pauses or silence (Aitchison, 2008).

3.2.7.2 Data Coding: Intuitive and Rational Moral Language

The first step in coding for intuitive and rational language is reported in this section. The MLUET is a tool pertaining to intuitive and rational language, using both a selection of linguistic variables defining the language production categories as developed in the LIWC, and theoretical concepts from moral psychology. A systematic and reliable coding methodology was developed using the following procedure.

We first generated a preliminary category list to identify a group of linguistic production variables that tapped intuitive and rational moral reasoning based on various definitions of the constructs existing in the literatures. For example, this list included emotive

words to indicate intuition and cognitive words to demonstrate rationality. Next, four raters "brainstormed" variables relevant to intuitive and rational reasoning and these were added to the initial category list. The final list is show in Table 5. These raters were undergraduate and graduate students who had expertise in human development, psychology, and linguistics. Consensus was derived on which of the categories to include in the analysis.

After generating the list of linguistic variables to count as potentially intuitive and rational language, data from the GRLS project described above were sorted into intuitive or rational language by two research assistants, independently, and then the two researchers compared their ratings to attain agreement. The category developed was then compared, as was the data segment, to determine if it aligned with the definitions outlined in the dual process framework, as follows.

Once the word lists of lexicon, syntax productivity, and general performance were compiled, the set of words in these categories were then rated by three research assistants. Two of these three research assistants also coded the data above. The research assistants conducted a reliability check to determine whether each variable in the language category list should be included in a particular language category. For instance, they would determine whether the use of adverbs in speech (i.e. elaboration or clarification of information) could serve as reliable indicators of rational language. Research assistants classified the number of pronouns, emotional words, and other particular linguistic dimensions into categories corresponding to words in the LIWC. Based on the judges' agreement, I excluded several variables—for example, punctuation (e.g. exclamation) hedges (e.g. "That's *kinda* sad"), and boosters or amplifiers (e.g. "I'm *so* glad you're here").

3.2.7.3 Data Coding: MLUET Language Production Coding of Elicited Natural Speech

The second major step in developing the MLUET was to apply it in order to categorize the language used by the adolescent girls. The LIWC provides an initial categorization of linguistic, paralinguistic, and psychological dimensions of language (Pennebaker, Booth, & Francis, 2007), and so a set of lexicon, syntax productivity, and general performance language categories were devised on which differences in intuitive and rational processes might be measured by the LIWC. These categories incorporate the LIWC characterizations plus the intuitive and rational language categories in moral language domain, as were described above in the first part of the MLUET development description.

In sum, the MLUET, then, contains the following categories, and includes the contents of these categories as described below in Table 5.

Table 5: Summary of MLUET Categories

Lexicon
In terms of lexicon, words used by participants were categorized as:
-Affective words (e.g. happy, sad)
-Cognitive words (e.g. indicating insight/analysis such think or consider)
-Perceptual words (e.g. saw, listened, felt)

Syntax Productivity
Syntax productivity was generally estimated through:
-Number of words
-Number of words per sentence
-Adverbs
-Conjunctions
-Prepositions
-Quantifiers
-Pronouns (1st, 2nd, 3rd person)

These estimates can be approximated through the LIWC and provide a sense of normal distribution for the results through the number of words and sentences.

General Processing
Instances of:
-Filler words (e.g. you know, um)

-Non-fluencies (e.g. stuttering)

These lexicon, syntax productivity, and general processing categories can be derived from the LIWC output.

Semantics
The nature of language used in moral justifications is evaluated according to the following:

Sentences containing judgment with a rationale/justification (e.g. steps of searching, weighing evidence).
Safety -
Relational
Conventional
Transformational
Dumbfounding
Unsupported statement
"I don't know"
-Incomplete sentences
Shifts/breaks (e.g. I don't know why… and I don't know whether...)

Intuitive and Rational Language Production Dimensions

The linguistic, paralinguistic, and psychological dimensions of language described in the LIWC (Pennebaker, Booth, & Francis, 2007) were categorized into intuitive and rational language according to criteria outlined in system 1 and 2 of the dual processing framework, as summarized below. I suggest several language production dimensions on which differences in intuitive and rational language might be measured. These include lexicon, syntax productivity, semantics, and general performance:

Lexicon

Participants use emotive and perceptual words to describe intuitive reasoning, and cognitive words are used to describe rational reasoning.

Affective Words: Affective words indicating positive and negative emotions were categorized as intuitive because impulsive, emotionally driven processes are explicitly linked to System 1

processing. This category of words often reflects pre-existing beliefs or experiences generated effortlessly in moral decision-making.

Perceptual Words: Perceptual words are classified as intuitive because they are triggered by immediate, non-analytical experiences in the environment. Perceptual words such as "view" and "saw" seem to indicate automatic, tacit, non-inferential processing that do not require explicit processing or cognitive effort.

Cognitive Words: Cognitive words are typically affect-free and provide evidence for expressing conscious mental states indicative of rational processing. Words such as "think" or "consider" seem to indicate explicit or systematic involving steps of searching or hypothetical thinking in which consciousness has an active and deliberate role.

Syntax Productivity

The mean lengths of utterances as measured by total word and sentence counts are higher in rational language and lower in intuitive language. More conjunctions, adverbs, prepositions, and quantifiers will also indicate more rational language. Intuitive reasoning will be described using a higher proportion of first person personal pronouns, while rational reasoning will contain a higher proportion of second and third person personal pronouns.

Word count and words per sentence count can serve as a variability control, showing that girls' word production, or talkativeness, remains somewhat stable over time. A high mean word count would reveal rational language requiring deliberation, while a low mean word count would indicate more immediately experienced and less systematically processed intuitive language. Estimates of word counts and words per sentence can be approximated through the LIWC, and together with the standard error of the mean generated by SPSS as part of the

output for t-tests, provide information on the normal distribution of responses for the results through the number of words and sentences.

Adverbs and Quantifiers: Adverbs and quantifiers indicate rational language because they are often used to communicate additional information while clarifying details. An adverb serves as an intensifier (e.g. so, really, very), providing greater expressiveness and emphasis through additional information about the circumstances of an activity or event (Carli, 1990). Quantifiers are used to specify information about the number or amount of something to describe how much or how many. These all seem to reflect rational language.

Prepositions and Conjunctions: Both prepositions and conjunctions express rational language by functioning as connectors between words, clauses, or phrases. They express logical relationships, as one interprets how the relationship between parts of a sentence that one has spoken can be linked or related to each other. This requires effortful and complex analytical processing.

Pronouns: First person pronouns are consistent with intuition because they indicate highly egocentric thinking or perspectives - a form of centration in which one assumes that others are thinking in accordance with one's own perspective (Piaget, 1932; Elkind, 1967) and may be unable to incorporate and coordinate multiple perspectives (Colby & Kohlberg, 1987). Second and third person pronouns reflect rational language use because they may reflect the ability to take another person's point of view. This argument is supported by research (Caruso, Epley, & Bazerman, 2006) that has found that children who have difficulty with perspective-taking are more likely to process language egocentrically, and that egocentric perceptions of moral concepts are processed rapidly and unconsciously.

General Processing

Filler words and non-fluencies: Intuition will contain non-fluencies and fillers. Filler words and non-fluencies are categorized as disconnected, incoherent, and tentative speech. Filler words and non-fluencies were categorized as disconnected and incomplete speech, and are indicative of intuitive processing because hesitation indicates dumbfounding. Dumbfounding has been shown to occur when an intuition is unsupported by verbally expressed reasons (Björklund, 2004; Haidt & Hersh, 2001).

Semantics: Descriptions of intuitive moral judgments contain fewer justifications, and rational moral judgments will contain more justifications. Semantics is used to examine how adolescent girls combine words and utterances into sentences, and how these sentences interact to form more complex moral meanings as girls construct justifications to explain their moral judgments.

It is especially important to understand the variety of justifications bystanders use to reduce the moral culpability of their actions. The use of Selman & Feigenberg's (2010) coding system allows a richer description of the quality of rational language use by adolescent girls discussing relational aggression. Their system is one that categorizes moral justifications based on safety, conventional, relational, and transformational responses. I consider these types of moral language usage to be rational because judgments involving justification are reached on the basis of some extended process of deliberate, systematic reasoning (e.g. weighing options or thinking of alternatives), in accordance with explicit criteria accompanied by awareness.

I developed the MLUET for this analysis (described in section 3.2.7) based upon assumptions from the literature (e.g. Haidt, 2001) to characterize intuitive justifications. Dumbfounding, unsupported statements, "I don't know" declarations, incomplete sentences,

and shift/breaks are referred to as evidence of intuitive language because one is unable to articulate a justification for an intuition that is rapidly and effortlessly generated.

MLUET Categorization of Intuitive and Rational Language

As tables 6 and 7 show, categorization of responses as utilizing intuitive versus rational language were determined by variations across all the above dimensions:

Table 6: Intuitive Language Production Correlates

Levels of language production	**Intuitive Language Target Words**	**Examples**
Lexicon	Perceptual, non-analytical words	View, sound, scream
	See	Stare, looked, view
	Hear	Yelling, whisper, spoke
	Feel	Pressed, sharp, thin
	Affective words	Care, annoy, cruel
	Positive emotion	Friend, forgave, trust
	Negative emotion	Lied, mad, selfish
	Anxiety	Afraid, guilt, upset
	Anger	Fought, threat, hated
	Sadness	Cried, isolated, helpless
	Swear Words	Heck, damn, jeez
Syntax Productivity	First person pronouns	I, me
Semantics	Sentences containing judgments with no justifications.	Incomplete sentence Dumbfounding "I don't know" Unsupported statement
Syntax Productivity	Low number of words	Below the first quartile (25^{th} percentile): 69,783
	Low number of words per sentence	Lower quartile range words per sentences
General processing/ Performance	Fillers	You know, like, I mean

	Non-fluencies	Ug, sigh, stuttering

Table 7: Rational Language Production Correlates

Levels of Language Production	**Rational Language Target Words**	**Examples**
Lexicon	Cognitive, analytical word	Ought, understand, consider
	Insight	Question, realize, Understood
	Causation	Result, response, Solve
	Discrepancy	Would, should've, Want
	Tentative	Almost, doubt, maybe
	Certainty	Totally, must, sure
	Inhibition	Careful, waiting, reluctant
	Inclusive	With, along, both
	Exclusive	Except, but, rather
	Sentences containing judgments with justifications	Safety Conventional Transformational Relational
Semantics	High total number of words	Above the third quartile (75^{th} percentile): 149,046
Syntax Productivity	High total number of words per sentence count	Upper quartile range of words per sentence
	Adverbs	However, maybe, whenever
	Conjunctions	Than, unless, until
	Prepositions	Except, against, besides
	Quantifiers	Partly, neither, most
	Second-person pronoun	You, yours, you've
	Third-person pronouns	She, his, them

Note: All variables except word count and words per sentence represent percentages of all total number of words a girl spoke during the interviews. Word count and words per sentence were reported as frequency totals. Pronoun usage represents percent of pronoun type over all pronouns.

In this work, I propose characterizing language as intuitive if it involves 1) low total word and word per sentence counts 2) affective/emotive words 3) perceptual words 4) first person personal pronouns 5) filler words/non-fluencies and 6) sentences without a justification. Rational language, in contrast, would contain: 1) high total word and words per sentence counts 2) cognitive words 3) second and third person personal pronouns 4) adverbs 5) conjunctions 6) prepositions and 6) sentences containing judgment with a justification. These characteristics will be measured by using the LIWC in combination with a theoretically based characterization of what types of language usages reflect rational and intuitive thinking.

In sum, I developed a methodological tool and a working definition of moral language use of intuitive and rational moral language in order to examine how people appear to use System 1 and System 2 thinking in discussing moral and relational aggression situations. There is also, however, the question of how rational language empirically differs in real and hypothetical situations. For this analysis, I turned to adding qualitative analyses to the MLUET methodology.

Moral Justifications: Semantics

I explored how the girls' rational and intuitive moral justifications varied across real and hypothetical cases discussed in the GRLS dataset used for this study. Selman & Feigenberg's (2010) coding system was referred to as evidence of rational language. Selman & Feigenberg (2010) identified four types of justifications that adolescents considered to be most important when selecting a strategy: safety, conventional, relational, and transformational. I build on Selman & Feigenberg's (2010) coding system to probe the nature of girls' moral justifications

(see table 8) as intuitive or rational. This is contrasted with four types of justifications that research (Björklund, 2004; Haidt, Björklund, & Murphy, 2000; Haidt & Hersh, 2001) has associated with intuitive decision-making: dumbfounding, unsupported statements, "I don't know," and incomplete sentences.

Table 8: Semantics: Rational Justification Categories

Adapted from Selman & Feigenberg (2010)

Rational Justification	**Description**	**Example**
Safety	Indicates protection as a priority. Perceives an immediate threat to one's emotional or physical well-being. Indicates that the main goal is to stop the current situation of exclusion. Does not reference long-term consequences or implications of recommended strategy.	"I'm usually a standbyer. Because, sometimes I stand up for people but it's hard because I don't want to be like turned on by the other people" (Participant 13, Year 2, Bystander Role). "I just didn't want to get involved and get in trouble" (Participant 7, Year 2, Bystander Role) "Because usually you'll be like following along and you should just say no I was quiet about it, I didn't want to hurt your feelings and stuff like that" (Participant 8, Year 2, RAI).
Conventional	References social norms, conventions, or rules (formal or informal) Highlights efficiency or expediency of the recommended strategy. Does not explicate	"I actually stay out of it totally, I do. Because then people just want to get sucked in and that's not for the good" (Participant 9, Year 1, Bystander Role.

	reasoning beyond simple explanations of cost-benefit analyses that one action is "better" than another.	"I just stood back and decided that this was none of my business. That I shouldn't really even be here" (Participant 3, Y1, Bystander).
Relational	Highlights the formation or maintenance of interpersonal relationships Articulates desire for belonging or connectedness with another person or with a group of people Identifies a connection between people's experiences or emotions	"Well, you kinda have to go through life with friends and you have to have lots of friends 'cause if you don't you'll just be lonely and you won't have anyone to talk to about something that happens" (Participant 15, Year 1, RAI). "If, if I'm like with a group and they don't really like someone so they decide to kick that person out of the group, and I'm friends with that person, then they don't really deserve to have my friendship right then" (Participant 3, Year 2, RAI).
Transformational	Explains connections between the recommended action and possible future consequences or implications. Speculates about the possible development of or changes in other people's thinking or beliefs. Articulates opportunities for group dynamics to shift as a result of the recommended action or implies that the recommended action could serve as a catalyst for these	"I was feeling bad for that girl and then that I probably, it might have helped if I had, I mean I might not have changed the opinion of like the person who was starting all the rumors and stuff, but I might have changed the opinions of the other people and she might not have been ignored" (Participant 10, Year 2, Bystander Role). And then say I'm still mad at you for this thing

	changes.	you did two months ago. And that really bugs me. It's like it happened, you can never erase it, I'm sorry. I will do anything to change what I did but we can't (Participant 9, Year 2, Bystander). "Because the more people that are on either side, the more the fight is going to get morphed, so like if it's just about a simple fight, and then it morphs into this huge thing about more things that the person did and so it can be" (Participant 9, Year 2, Bystander).

Table 9: Semantics: Intuitive Justification Categories

Intuitive Justification	Description	Example
Dumbfounding	Participants have strong feelings or convictions when stating that they know or believe something, but cannot find reasons to support their beliefs.	"Well, I can't explain it. I know why, because its like they were being mean to other people I guess, I don't know" (10, Year 1, RAI).
Unsupported Statement	A statement is left unsupported by justifications. Participants do not seek reasons to support their statements (e.g. steps of searching, weighing evidence).	"I sometimes do something, but sometimes don't" (Participant 13, Year 1, Bystander Role). "Sometimes I stand up for them, but usually I don't do anything really" (Participant 13, Year 1, Bystander Role).
"I don't know"	Participants are unable to generate a response.	"I'm not sure" (Participant 3, Year 2, Bystander Role).
Incomplete sentence	Responses are interrupted	"No, I think they just should

	by shifts, breaks, pauses, or restarts. Sentences are fragmented or ungrammatical.	have, I don't know, well if they told Karen that nobody was going to the movies then they shouldn't have gone or they shouldn't have been talking behind her back and rolling their eyes" (Participant 7, Year 2, RAI). "I'd tell them they're being mean and I'd, um, I'd, I don't know. It kind of depends on the situation" (Participant 7, Year 1, RAI).

I conducted a semantic content analysis of girls' moral language, with an emphasis on classifying the rational and intuitive justifications girls provide when discussing a hypothetical scenario and their real-life experiences as bystanders. Qualitative content analyses were conducted by coding the justifications using the factors specified in the MLUET (see Tables 8 and 9). This was done to evaluate the nature of the girls' moral justifications in the real and hypothetical scenarios, and allowed subsequent coding for the factors in the MLUET. To conduct a content analysis, the text was coded into justification categories based on how words, utterances, and sentences relate to one dominant underlying meaning. Each interview segment was classified as either an 'intuitive' or 'rational' justification based upon the semantic relationships between the words and phrases in a given text rather than individual words or sentences. Each segment was assigned to a justification category based on the justification category that dominated the discussion. The percentage that each justification type represented the total number of interviews was calculated. The results are then used to interpret the text(s). Interviews were treated as wholes in which a participant discussed her decisions in hypothetical and real scenarios.

Approximately 10% of the 11 participants' interviews were selected for coding and reliability. One researcher and I coded the data semantically independently, and then together, and agreed upon the classifications of each interview segment. No reliability figures were calculated, since all of the coding was done using a consensus approach to shared understanding of the data. These data were hand-coded using a discourse chunking method, and not processed using any qualitative data analysis software, such as Atlas Ti.

3.2.7.4 Data Analysis

1) As described in Section 3.2.6, quantitative analyses of these transcripts were first conducted by coding the lexical, syntactic, and general performance raw data using the LIWC2007 (Pennebaker, Booth, & Francis, 2007). After the files were processed as text in Word document files (.doc), the output files were saved in tab-delimited text. The results of the LIWC and MLUET codings were then transferred into an Excel spreadsheet so that they could be exported into SPSS to conduct t-tests. The spreadsheet contained a breakdown of students by grade, language level, and type of interview. See Tables 9-12 in the results chapter. The output files, Excel spreadsheet, and SPSS results were all stored in the secure password protected server of the Virtual Center for the Study of Language Acquisition (VCLA) (www.clal.cornell.edu/vcla).

2) Quantitative analyses were conducted using SPSS on the LIWC output of data. T-tests were used to determine whether differences between means were statistically significant.

The results were compiled by calculating the percentage of words used by a participant in each interview speech text sample and then averaging the percentage across all four instruments in the interview protocol: Judy's dilemma from the Moral Judgment Interview (Colby & Kohlberg, 1987), a Metacognitive Interview (Schrader, 1988), Real Life Interview

(RLI), and the hypothetical relational aggression interview (RAI) with two parts (A-Cassie's dilemma; B-roles of bully, bystander, and victim).

3.2.8 Summary

Despite the centrality of works on intuitive and rational processes of moral decision making, the literature has yet to develop methodologies for measuring the degree to which participants' discussions of their moral judgments can be characterized linguistically as intuitive or rational. In this chapter, I proposed a new research method of analysis to explore how girls use intuitive and rational language to discuss hypothetical and real life scenarios of relational aggression in moral judgment interviews. I characterize language use as intuitive if it involved relatively 1) low total word and word per sentence counts, and high use of 2) affective/emotive words 3) perceptual words 4) first person personal pronouns 5) filler words/non-fluencies and 6) sentences without a justification. Rational language, in contrast, would contain a high number of: 1) high total words and words per sentence counts 2) cognitive words 3) second and third person personal pronouns, 4) adverbs 5) conjunctions; 6) prepositions and 6) sentences containing judgment with a justification. These characteristics were formulated by combining the LIWC with a theoretical analysis of intuitive and rational thinking derived from the literature review in chapter 2.

Chapter 4: Results

This chapter reports results from a quantitative analyses conducted on a selected subset of data from the GRLS dataset for grades five, six, and seven (collected in 2006-2009). The aim of this analysis was primarily exploratory, so t-tests for the differences between means were conducted ($p < 0.05$) to determine if statistically significant differences occurred in intuitive compared to rational uses of language between fifth, sixth, seventh grades, as adolescent girls moved to higher grades. Comparisons were also made to detect if the use of intuitive and rational language varies with roles played and across real-life and hypothetical dilemmas. The quantitative results were compiled by calculating the percentage of words used by a participant in each interview and then averaging the percentage across all four interviews. All variables except word count, words per sentence, and pronouns reflect represent percentages of the total number of words a participant spoke during the interviews. Pronoun usage represents percent of pronoun type over all pronouns. Word count and words per sentence are reported as frequency totals. The sample sizes (N's) in the tables represent the number of girls multiplied by the number of interviews completed, and vary by grade level.

I also provide a semantic content analysis of girls' moral language, with an emphasis on classifying the rational and intuitive justifications girls provide when discussing a hypothetical scenario and their real-life experiences as bystanders. Frequencies were hand-counted after classifying each interview segment as either 'intuitive' or 'rational' based upon the semantic relationships between the words and phrases in a given text rather than individual words or sentences.

The main question addressed in this analysis are, what is the nature of adolescent girls' language use in their discussions of moral and relational aggression situations, particularly in

regard to intuitive and rational thinking, and does that language use change in its expression from fifth through seventh grades. This question will be addressed in four sub-questions to examine more specifically how girls' moral language changes.

1. What types of language do girls use, and what is the extent of that usage?
2. Are there differences in the extent of use of intuitive and rational language as adolescent girls move from fifth, to sixth, to seventh grades?
3. Which types of moral language do they use in the various roles of relational aggression, specifically, the bully, victim, and bystander roles?
4. Which types of moral language do they use in the various types of relational aggression scenarios--real life versus hypothetical dilemmas?

4.1 Research Questions 1 and 2

The findings provide some evidence to reject the hypothesis 1) that when all grades are combined adolescent girls use more intuitive language than rational language in the usages that can be most directly contrasted, but to support the hypothesis 2) that between the fifth and seventh grades, adolescent girls move from intuitive towards rational styles of reaching moral judgments. Appendix C shows LIWC data for each subject and interview. Table 10 summarizes these for all grades, and Table 11 presents the data for each grade.

The total word number of words used was 318,629 and 4840 words used per sentence. The girls used far more words reflecting cognitive (8,211) than affective (1,936) or perceptual (596) processes (see Table 10). They also used adverbs (2,485), prepositions (2,886), conjunctions (2,949) and quantifiers (658) with great frequency. I had proposed that use of these terms suggested the more complex syntax in rational discourse. On the other hand, the

girls were slightly less likely to use first person pronouns (2,114), thought to be associated with intuitive language, than second and third person pronouns taken together (2, 327).

Table 10: Girls' Language Use in All Grades: Syntax Productivity, Lexicon, and General Performance

	ALL GRADES		
All	Mean	N	TOTAL
LANGUAGE LEVELS			
Syntax Productivity			
Word count	1076.449	296	318,629
Words per sentence	16.351	296	4,840
Personal Pronouns	15.002	296	4,441
First person	7.143	296	2,114
Other person	7.860	296	2,327
2nd person	2.033	296	602
3rd person singular	3.547	296	1,050
3rd person plural	2.280	296	675
Adverbs	8.395	296	2,485
Prepositions	9.751	296	2,886
Conjunctions	9.961	296	2,949
Quantifiers	2.224	296	658
Lexicon			
Affective processes	6.541	296	1,936
positive emotion	4.517	296	1,337
negative emotion	2.004	296	593
Swear words	.022	296	6
Perceptual processes	2.016	296	597
View, saw,	.252	296	75
Listen, hearing	.947	296	280
Feel	.795	296	235
Cognitive processes	27.740	296	8,211
Insight	4.837	296	1,432
Because, effect	2.641	296	782
Discrepancy	3.998	296	1,183
Tentative	6.148	296	1,820
Certainty	.912	296	270
Inhibition	.595	296	176
Inclusive	5.064	296	1,499
Exclusive	6.697	296	1,982

General Processing			
Nonfluencies	1.257	296	372
Fillers	1.780	296	527

Syntax Productivity

The mean number of words used grew from 941.51 in fifth grade, to 1129.14 in sixth grade, and then to 1203.16 in seventh grade. The mean number of words per sentence steadily declined from 17.86 on fifth grade, 15.56 in sixth grade, and then to 15.40 in seventh grade. There were no statistically significant differences in the mean percentage of words using prepositions, quantifiers, or swear words between grades. The use of adverbs also grew significantly ($p = .001$) from fifth to seventh grades, from appearing in 7.94% of words to 9.08%. The increases from the fifth to the sixth grade (from 7.94% to 8.46%) and from sixth to seventh grade (from 8.46% to 9.08%) fell just short of statistical significance ($p = .052$ and $p = .068$, respectively). The use of conjunctions declined significantly ($p = .004$) between the fifth and seventh grades, from appearing in 10.25% of words to 9.42%. This was primarily attributable to a statistically significant ($p = .044$) usage from 9.97% of words in sixth grade to 9.42% in seventh; the decline between the fifth and sixth grades (from 10.25% to 9.97%) was not statistically significant ($p = .276$).

The findings on the use of first vs. second and third person pronouns were more complex and less clear-cut, however. There was a statistically significant decrease ($p = .050$) in students' mean use of pronouns, from 25.24% of words in fifth grade to 24.06% in the seventh grade. However, the increases between the fifth and sixth grades, and between the sixth and seventh, were not statistically significant. The mean percentage of first person pronouns used increased significantly ($p = .014$) from 6.41% of all words in fifth grade to 7.52% in sixth grade, and then showed a statistically non-significant increase to 7.63% in seventh grade. The

growth from fifth grade (6.41%) to seventh grade (7.64%) was also statistically significant (p = .007). Conversely, the percentage of second and third person pronouns used decreased significantly (p = .002) from 8.66% of all words in fifth grade to 7.31% in sixth. Despite a statistically insignificant (p = .382) increase in the use of second and third person pronouns between the sixth (7.31%) and seventh (7.65%) grades, the decline from fifth (8.66%) to seventh grade (7.65%) remained statistically significant (p = .020). This is inconsistent with the hypothesis that the girls were moving from intuitive towards rational moral language.

Lexicon

The mean percentage of words reflecting affective processes fell from 6.77% in fifth grade to 6.15% in seventh grade (p=. 011). Here and throughout the table, the absolute size of the difference may not seem large. However, the standard error of each mean (0.199 for the fifth grade mean, and 0.137 for the seventh grade mean) is very small. This suggests a high degree of similarity in the usage of affective language amongst adolescent girls within each grade, and a contrast between the fifth and seventh grade that although small is unlikely to be attributable to chance. That is, for most language usages, the mean percentage of each usage by girls in each grade is very close to the mean for that grade, and where differences are significant, the means differ across grades. Neither the decline between fifth and sixth grade (from 6.77% to 6.52%) nor that between sixth and seventh grade (from 6.52% to 6.15%) were statistically significant, however. Conversely, the mean percentage of words reflecting cognitive processes grew significantly from 27.19% in fifth grade to 29.09% in seventh grade (p=. 000). The growth between fifth and sixth grade (from 27.19% to 27.59%) was not statistically significant, but there was a statistically significant increase between sixth and seventh grade, from 27.59% to 29.09%.

Further bolstering evidence of this developmental change, the analysis found some significant changes between grade levels in the mean percentage of words involving the cognitive processes of Insight, Causation, Tentative, Certainty, Inhibition, and Inclusive and Exclusive thinking. The mean percentage of words involving explanation fell significantly ($p = .024$) from a mean of 2.82% of words in fifth grade to 2.51% in sixth grade. However, the mean percentage rose to 2.61% of words in seventh grade. This increase was not statistically significant, but it sufficiently counterbalanced the decline between fifth and sixth grade to render the overall change between fifth (2.82% of words) and seventh grade (2.61%) statistically insignificant ($p = .151$). The use of explanatory terms was thus statistically unchanged between the fifth and seventh grades.

There was also no statistically significant change ($p = .166$) in the mean percentage of words with Tentative expressions between fifth (6.23%) and seventh (6.61%) grades. However, the percent of words with Tentative expressions did increase significantly ($p = .005$) from 5.88% in sixth grade to 6.61% in seventh grade. This was partially counterbalanced, however, by the statistically insignificant ($p = .207$) decline from 6.23% to 5.88% in the mean percentage of words involving Tentative expressions. Contrary to expectations of a shift from intuitive to rational moral decision-making, the percentage of words involving inclusive concepts fell significantly ($p = .017$) from 5.29% in fifth grade to 4.65% in seventh grade.

Findings involving Insight and Certainty were more consistent with the hypothesis that moral language would shift from intuitive towards rational forms of cognition. The mean percentage of words involving Insight grew significantly ($p = .009$) from 4.31% in fifth grade to 4.90% in sixth grade, and then increased significantly again ($p = .002$) to a mean of 5.66% of words in grade seven. The growth in the mean percentage of words involving Insight from

4.31% in fifth grade to 5.66% in seventh grade was also statistically significant (p = .000). The percentage of words expressing Certainty grew significantly (p = .006) from 0.76% of in the fifth grade to 1.01% in the seventh grade. This was largely attributable to a statistically significant (p = .029) increase between the fifth and sixth grades, from 0.76 to 0.99% of words. The growth between sixth and seventh grades (from .99 to 1.01% of words) was not statistically significant (p = .889).

The percentage of words involving concepts of Exclusion did increase from 6.64% in fifth grade to 7.06% in seventh, but the change fell short of statistical significance (p = .073). An almost significant (p = .057) increase in the percent of words expressing exclusion, from 6.58% in the sixth grade to 7.06% in the seventh grade, was partially counterbalanced by a statistically non-significant (p = .786) decline from 6.64% in the fifth grade to 6.58% in the sixth.

Only Discrepancy (which only ranged between means of 3.93% and 4.03% of words) and Inhibition (which ranged from means of 0.58% to 0.62% of words) had no statistically significant changes.

The mean percentage of words involving perceptual processes fell from 2.20% in fifth grade to 1.83% in seventh grade (p=. 018), which is consistent with the growth in words reflecting the several cognitive processes. Once again, however, the declines between fifth and sixth grades (from 2.20% to 1.95%) and between sixth and seventh grades (from 1.95% to 1.83%) were not statistically significant, suggesting a gradual change over the period between the fifth and seventh grades.

General Performance

The mean number of non-fluencies dropped by almost half between fifth (1.84) and sixth (0.99) grades (p = .000), but the further decline to 0.80% in the seventh grade fell short of statistical significance (p = .071). The difference between the fifth (1.89) and seventh (.80) grades was also statistically significant (p = .000). The use of fillers grew from fifth to sixth grades, from 1.14 to 1.96 per words (p = .000), and grew again to a mean of 2.53 in seventh grade (p = .008). The growth from fifth to seventh grade was also statistically significant (p = .000).

Table 11: Results for Girls' Language Use by Grade: Syntax Productivity, Lexicon, and General Performance

	GRADE 5			GRADE 6			GRADE 7		
Language Levels	**Mean**	**N**	**SD**	**Mean**	**N**	**SD**	**Mean**	**N**	**SD**
Syntax Productivity									
Word count	941.509	106	789.892	1129.136	132	859.337	1203.155	58	742.012
Words/sentence	17.858	106	8.508	15.557	132	4.643	15.402	58	4.558
Personal Pronouns	15.070	106	3.048	14.827	132	2.814	15.278	58	1.694
1st person	6.411	106	3.133	7.518	132	3.744	7.626	58	2.427
Other person	8.658	106	3.307	7.310	132	3.101	7.653	58	2.156
2nd person	2.466	106	1.830	1.683	132	1.283	2.041	58	1.353
3rd person singular	3.547	106	2.845	3.330	132	2.409	4.038	58	1.832
3rd person plural	2.645	106	1.631	2.297	132	1.342	1.573	58	.836
Adverbs	7.939	106	1.983	8.461	132	2.126	9.077	58	2.113
Prepositions	9.755	106	2.070	9.636	132	2.442	10.007	58	1.604
Conjunctions	10.251	106	1.994	9.967	132	1.991	9.417	58	1.581
Quantifiers	2.165	106	.897	2.303	132	1.013	2.152	58	.690
Lexicon									
Affective	6.771	106	2.049	6.529	132	2.282	6.149	58	1.042
Cognitive	27.187	106	3.142	27.591	132	3.864	29.090	58	2.584
Perceptual	.620	106	1.246	1.948	132	1.183	1.831	58	.739
General Performance									
Non-fluencies	1.837	106	1.282	.993	132	.893	.799	58	.558
Fillers	1.138	106	.840	1.964	132	1.137	2.537	58	1.410

Note: The sample sizes (N's) in the tables represent the number of girls times the number of interviews completed. The means represent the percentages of total words in the transcripts averaged across the four interviews, with the exception of Word Count and Words per Sentence variables, which are reported as frequency totals.

4.2 Research Question 3

The hypotheses that there would also be differences in the use of first vs. second and third pronouns between the roles that participants played as bullies, victims, and bystanders must be rejected. Coding the RAI for syntax and through a quantitative analysis of the pronoun use, moral language use did not statistically differ across roles.

4.3 Research Question 4

I hypothesized that intuitive language would be more strongly correlated with real life dilemmas and rational language would be more strongly correlated with hypothetical dilemmas. Specifically, it was argued that the use of first person pronouns would be higher in real-life than in hypothetical scenarios, reflecting a greater reliance upon intuitive decision-making when one is personally involved in a real-life decision. As tables 12 and 13 indicate, the results are strong: the mean percentage use of first person pronouns in the role-playing interviews (9.68) is significantly (p =. 000) higher than in the hypothetical scenario (4.94). Conversely, the mean percentage use of second and third person pronouns is significantly higher (p = .000) in the hypothetical scenario (10.24) than in the role-playing interviews (5.98).

Also consistent with this hypothesis, students discussing their role-playing as bullies, victims, and bystanders each used significantly more first person pronouns, and significantly fewer second and third person pronouns than when they discussed a hypothetical scenario. Students used a mean of 4.94 first person pronouns in discussing the hypothetical scenario, compared to 10.94 first person pronouns by those who role-played as bullies, 8.73 for those in victim roles, and 9.42 for those playing bystanders. Conversely, students used a mean of 10.24

other person pronouns in discussing scenarios, compared to a mean of 6.10 for those playing bullies, 5.46 for those in victim roles, and 6.42 for those playing bystanders. Furthermore, the mean words per sentence when girls discussed role-playing scenarios (15.66) did not statistically differ from the mean when they discussed hypothetical scenarios (17.41).

Table 12: RAI: Part I Hypothetical Scenario (Grades 5 and 6)

RAI: Cassie Dilemma	Mean	N	SD
Personal Pronouns	15.175	27	2.079
First person	4.937	27	1.862
Other person	10.239	27	2.062
2nd person	1.795	27	1.246
3rd person singular	5.211	27	1.496
3rd person plural	3.233	27	1.269

Table 13: RAI: Part II Real-Life Scenario (Grades 5 and 6)

RAI: Bystander, Bully, and Victim Roles	Mean	N	SD
Personal Pronouns	15.667	73	3.907
First person	9.683	73	3.943
Other person	5.983	73	2.754
2nd person	1.598	73	1.637
3rd person singular	1.568	73	1.924
3rd person plural	2.817	73	1.823

Note: The sample sizes (N's) in the tables represent the number of girls times the number of interviews completed. The means represent the percentages of total words in the transcripts averaged across the four interviews.

4.4 Summary of Quantitative Results

The results indicate that overall adolescent girls in the fifth, sixth, and seventh grades use more rational than intuitive language, but that as they advance from the fifth through the seventh grades, adolescent girls move from intuitive towards rational styles of reaching moral judgments. The answer to Research Question 1 is therefore that girls in the fifth to seventh grade age range use more rational than intuitive language. The shift to more rational language

in the higher grade suggests an affirmative answer to Research Question 2: there are differences, and these might represent a developmental trajectory. The findings strongly indicate that adolescent girls do use different types of language in discussing real life versus hypothetical dilemmas, and that the language more likely to be rational in the hypothetical and intuitive in the real life dilemmas. There were, however, no significant differences between the roles (bully, victim, bystander) played.

4.5 Moral Justifications

A qualitative content analysis was performed on moral justifications to test the differences between role-playing and hypothetical scenarios. Interviews were treated as wholes in which each segment was assigned to a justification category based on the justification category that dominated the discussion. The percentage that each justification type represented in the total number of interviews was calculated.

Overall, girls discussing their role-playing as bystanders (n=8) used 17.4% more rational justifications and 17% fewer intuitive justifications than when they discussed a hypothetical scenario (n=11). Rational justifications were most often provided in hypothetical scenarios (86.4%) based on relation (64%), safety (18%), and convention (5%). Even in real-life scenarios, girls also gave rational justifications (69%) based on relation (44%), followed by convention (38%) and safety (13%). However, transformational responses (13%) were also represented in real-life scenarios, but not in hypothetical. The percentage of intuitive responses in the hypothetical scenario was quite small (14%), and mostly based on dumbfounding (5%) and incomplete sentences (9%). A much greater percentage of girls provided intuitive justifications (31%) in the real-life scenario, with more variation in unsupported statements (13%), dumbfounding (6%), 'I don't know' (6%), and incomplete sentences (6%).

Summarizing the results shown in tables 11 and 12 revealed a developmental shift from intuitive to rational moral justifications. The number of rational justifications increased 14 percentage points in the hypothetical scenario (36% to 50%), and only 7 percentage points in the real-life scenario (31% to 38%). However, the real-life scenario showed more variation in growth, moving from all conventional responses (100%) in year 1 to safety (33%), relational (33%), and transformational (33%) responses in year 2. In the hypothetical dilemma, girls consistently gave the same number of relational (4) and safety (2) justifications in both years. Intuitive justifications decreased 21 percentage points overall, with a decline from 16% to 13% in the real-life scenario, and from 16% to 0% in the hypothetical. The hypothetical dilemma contained no intuitive justifications the second year, compared to 3 the previous year (9% dumbfounding and 18% incomplete sentences).

Table 14: Intuitive and Rational Moral Justifications in Real-Life and Hypothetical Dilemmas

	Real-Life Bystander Role	**Real-Life Bystander Role**	**Hypothetical RAI-Cassie**	**Hypothetical RAI-Cassie**
	Year 1	**Year 2**	**Year 1**	**Year 2**
A. Intuitive Language				
Unsupported declarations	1	1		
I-don't-know		1		
Dumbfounding (I-don't-know with justification)	1		1	
Dead-ends	1		2	
Total Justifications	3	2	3	0

	Real-Life Bystander Role	Real-Life Bystander Role	Hypothetical RAI-Cassie	Hypothetical RAI-Cassie
	Year 1	**Year 2**	**Year 1**	**Year 2**
B. Rational Language				
Safety		2	2	2
Conventional	5			1
Relational		2	6	8
Transformational		2		
Total Justifications	5	6	8	11

The qualitative content analysis thus suggests that there may be important differences in the grounds on which adolescent girls seek to justify their decisions in real life versus hypothetical dilemmas. The results suggest it might be fruitful to undertake similar analyses on samples large enough to support statistical analyses.

4.6 Summary of Results

The findings provided considerable empirical evidence confirming the hypotheses for Questions 2, and 4 whereas the hypothesis for Questions 1 and 3 were disconfirmed. Research 1 asked what types of language do girls use and what is the extent of that usage.

Research Question 1 asked whether girls use more intuitive or rational language. The girls used far more words reflecting cognitive than affective or perceptual processes. They also frequently used adverbs, prepositions, conjunctions, and quantifiers. However, the girls were slightly less likely to use first person pronouns, thought to be associated with intuitive language, than second and third person pronouns taken together. Girls thus seem to use more rational than intuitive language overall.

Research Question 2 asked whether the language used by adolescent girls becomes less intuitive and more rational as the girls move from fifth to sixth and then to seventh grades,

reflecting a move from more intuitive towards more rational styles of reaching moral judgments. Important evidence supporting this developmental change in moral decision-making was found. The use of words reflecting affective processes fell from the fifth grade to the seventh grade, while the use of words reflecting cognitive processes grew. Adolescent girls thus seem to measurably shift from affective to cognitive descriptions of their moral judgment processes between the fifth and seventh grades, with most of the change occurring between the fifth and seventh grades.

The use of words reflecting Insight and Certainty also grew significantly between the fifth and seventh grades, while words involving perceptual processes fell, consistent with the hypothesized shift of moral processing from intuitive towards rational forms of cognition. Non-fluencies dropped by almost half between the fifth and seventh grades while the use of fillers more than doubled. These findings are all consistent with the hypothesis that the girls were moving from intuitive towards rational moral decision-making between the fifth and seventh grades. Also consistent with this hypothesis were statistically significant increases in the use of adverbs from the fifth to seventh grade, However, there was a decline in the use of conjunctions over this period of time.

Contrary to the hypothesis, however, there was a statistically significant increase in the use of pronouns, from the fifth to seventh grade, and the girls shifted from using second and third person pronouns, which declined, towards using first person pronouns, which grew. The use of inclusive concepts fell between the fifth and seventh grades, and the girls used fewer words involving explanation in the sixth than in the fifth grade, but more in the seventh than in the sixth. These changes partially counterbalanced, leaving no significant differences in the use of explanatory words between the fifth and seventh grades. The results on Tentative

expressions and concepts of Exclusion were also inconclusive, with statistically changes between two grades counterbalanced by countervailing changes in the third, rendering the fifth to seventh grade difference statistically insignificant. There were no statistically significant differences in the mean percentage of words using prepositions, quantifiers, or swear words between grades. Also inconsistent with this hypothesis were statistically significant decreases in the use of conjunctions from the fifth to seventh grade.

Research Question 3 asked whether intuitive and rational language varies with bully, victim, and bystander roles. The results showed no statistical differences in students' use of first vs. second and third person pronouns across the roles that participants played as bullies, victims, and bystanders. The hypothesis that usage would differ across these roles therefore must be rejected.

The fourth research question asked what type of intuitive and rational moral language is used in real life versus hypothetical dilemmas and whether this moral language use differs across the scenarios. The results strongly supported the hypothesis that the use of first person pronouns would be higher in role-playing than in hypothetical scenarios. The use of first person pronouns was higher (about twice as high) in real-life, role-playing than in hypothetical scenarios.

The use of first person pronouns was also higher when students discussed each of the roles they played – as bullies, victims, and bystanders – than when they discussed a hypothetical scenario. One should note that the mean number of words per sentence did not differ when girls discussed role-playing scenarios instead of hypothetical scenarios, and so did not contribute to the differences in pronoun usage across the two types of dilemmas.

Finally, a qualitative content analysis of the girls' moral justifications indicated that girls discussing their role-playing as bystanders provided more rational justifications and fewer intuitive justifications than when they discussed a hypothetical scenario. Most rational justifications of judgments in the hypothetical scenarios were based on relation, although a few employed safety and convention. In discussing real-life scenarios, the rational justifications were more evenly divided between relation and convention, with a smaller number of safety and transformational responses. There were no transformational responses in discussions of the hypothetical scenarios, and the few intuitive responses primarily reflected dumbfounding and incomplete sentences.

The developmental shift from intuitive to rational moral justifications was more pronounced in the hypothetical scenario than in the real-life scenario. However, justifications in the real-life scenario shifted from all conventional responses in year 1 to equal thirds of safety, relational, and transformational responses in year 2, while there was no change in the justifications, which were relational and safety, in the hypothetical scenario across the two years. Intuitive justifications declined from year 1 to year 2 in the real-life scenario, and disappeared from the hypothetical dilemma in year 2.

Chapter 5: Conclusions

The present chapter discusses the main findings of the study, involving both quantitative and qualitative variability in adolescent girls' conflict in the light of the research questions in Chapter 2, and compares the results to the findings of other studies. Next, I discuss the theoretical and empirical implications of these findings for research and practice in moral education. I conclude with limitations and future directions for research, and outline some of the many questions yet to be answered.

5.1 Major Findings

This dissertation explored moral language use in a sample of 15 developing adolescent girls as they discussed several real-life and hypothetical scenarios involving relational aggression conflicts. The study asked whether the language they used to discuss these moral conflicts was more intuitive or rational, and whether this relationship changed over development. The data was analyzed for developmental trends, examining changes that occurred over a three year period.

Building upon suggestions emerging in the sociolinguistic, education, and moral psychology literatures, I defined a set of lexical, syntactic, semantic, and general processing/performance language categories associated with intuitive processing, and a contrasting set that should be associated with rational processing. These respectively defined 'intuitive' and 'rational' uses of language, and provided language production indicators that the study used to identify and analyze the conditions under which adolescent girls used each in reaching and in discussing their moral judgments in real-life and hypothetical encounters with relational aggression. The quantitative and qualitative analyses of the language used allow me to draw conclude point to five major conclusions.

5.1.1 Overall Intuitive and Rational Language Use

The results provide evidence against the assumption that girls use more intuitive language than rational language overall. The present findings challenges existing research on adolescents' language, especially those findings that suggest adolescent girls rely on emotional lexicon in their language. This finding is important because it offers a novel perspective on the correlation between language use and emotional language. One particularly interesting aspect of the research focused on how adolescents do develop an enhanced ability to deal with complex emotional experiences as they shift towards broader, more differentiated linguistic representations of emotion, but overall, emotion language does decrease with age (O'Kearney & Dadds, 2004; Saarni, Mumme, & Campos, 1998). The results from this study this does not mean the language used to express emotions may mostly involve emotional terms. Speakers will be more likely to emphasize cognitive aspects when discussing their emotions with relational aggression situations, particularly when responding to impersonal, hypothetical scenarios about what others would do. Reappraisal of emotion may increasingly depend on cognitive uses of language to explain emotions in referring to the eliciting relational aggression situation (Romaine & Lange, 1991). This is supported by O'Kearney & Dadds' (2004) observation that adolescents frequently use situational, behavioral, and cognitive references to express their emotions.

Girls' verbal reports of relational aggression situations depend on their perspectives as they reconstruct or interpret an event or speech. It is difficult to capture emotive speech, because the words often expressed in the structure and not the content of an utterance (Romaine & Lange, 1991). It can also be difficult to reconstruct emotionally laden events, because the strong feeling girls experience when they are hurt tend to disappear quickly (Brown, 1998).

5.1.2 Developmental Changes in Intuitive and Rational Language

Research Question 2 asked whether the language used by adolescent girls becomes less intuitive and more rational as the girls move from the fifth to the sixth and seventh grades, reflecting a move from more intuitive towards more rational styles of reaching moral judgments. The quantitative and qualitative analyses of the language indicated that adolescent girls do seem to shift from intuitive to rational styles of moral decision making. Most striking was the finding the girls were only gradually shifting from intuitive towards rational uses of language, with most of the change occurring overall in the period between the fifth and seventh grades. The analysis found evidence supporting this developmental change in the relative shifts from words reflecting affective processes to those reflecting cognitive processes; from words reflecting perceptual processes towards cognitive words involving Insight, Inclusion, and Certainty. Non-fluencies dropped by almost half between the fifth and seventh grades, while the use of fillers more than doubled. The statistically significant increase in the use of adverbs from the fifth to seventh grade was also consistent with this hypothesis.

Combining the concept of intuition and rationality leads to an enhanced picture of what linguistic features develop throughout adolescents. Thus, one of the advantages of this longitudinal sample of girls is that it provides a much more detailed picture of linguistic variation in general processing, lexicon, semantics, and syntax within relational aggression situations. Also, the pronounced linguistic changes across fifth to seventh grades can serve as an age-related linguistic developmental marker. In contrast to the evidence for the late development of rationality, the results demonstrate the existence of rational language at earlier ages than were revealed in previous studies. These findings are in line with Eckert's (2003) argument that language is more stable during the transition from elementary school to middle

school, when children are typically faced with rapid social change in the form new friendships and emerging forms of identity. These results are also consistent with the research that has shown that relational aggression is most prominent in students following middle and high school transitions (Cillessen & Mayeux, 2007; Pellegrini and Long, 2002).

The significant decline for conjunctions could be independent of moral language and instead be attributed to grammatical changes. Conjunctions could act as discourse fillers by interrupt or facilitating transition of speech (e.g. shift in topic), suggesting that this aspect of language may not be a valid indicator of moral language.

The findings on the use of first vs. second and third person pronouns were especially notable. Contrary to expectations, girls' pronoun usage became more intuitive and less rational with development. There was a statistically significant decrease in students' mean use of pronouns, from fifth grade to seventh grade. From fifth grade to sixth grade, the mean percentage of first person pronouns used increased significantly while second and third person pronouns used decreased. From fifth grade to seventh grade, the mean percentage of first person pronouns used increased significantly whereas second and third person pronouns declined. The results challenge Brown & Gilligan (1992)'s conclusion that girls age, they become less egocentric, more autonomous, and are better able to differentiate their emotions and thinking from others. This study suggests that girls could use first person pronouns more often because they are more introspective and metacognitive when discussing situations of relational aggression. These findings could also indicate that the pronoun categories of the MLUET are not valid indicators of moral language. Additional research is needed to distinguish the moral meanings for pronouns.

5.1.3 Pronoun Variation in Roles

The hypotheses that there would also be significant differences in the use of first vs. second and third pronouns between the roles that participants played as bullies, victims, and bystanders must be rejected. Coding the RAI for syntax and through a quantitative analysis of the pronoun use, moral language use did not statistically differ across roles. The standard deviations for the use of first person pronouns in discussions involving bullying roles was 5.6%, representing more than half of the mean usage of first person pronouns in such roles (10.9%). In contrast, the standard deviations for bystander (3.4%) and victim (2.8%) roles were much narrower, representing only one third, approximately, of the means (9.4 and 8.9%, respectively). The higher standard deviation for the bullying role indicates that some respondents were much more likely to have much higher usage of the first person than the mean, and others much lower usage. In contrast, the smaller standard deviations for the use of first person pronouns in discussion bystander and victim roles indicates that respondents were much closer to the means in their usage of the first person.

The higher standard deviations in discussing bullying roles might represent the presence of varying explanation or justification styles among the respondents (tendencies, perhaps, in explaining bullying behaviors (e.g., by relatively high use of the first person or by emphasis on the third person behaviors of the other parties), compared to more standardized or common usages of the first person in discussing bystander and victim roles. That is, while respondents showed relatively little variation in the use of first person pronouns in bystander and victim roles, some respondents used the first person pronoun frequently in discussing bullying roles, while others used it sparsely. It follows that the greater variation within bully roles suggests an interaction between intuition and rational language. Aggressors could use first person

pronouns more to reduce their moral culpability, when boasting about themselves or displaying self-aggrandizing behavior. Alternatively, aggressor may use other-person pronouns to focus on bystander or victim as partly responsible, which would enable aggressors to deny responsibility and blame (Baumeister, Stillwell, & Wotman, 1990). This use of second and third person pronouns would allow an aggressor to minimize the moral implications of their actions by emphasizing external or mitigating circumstances. This interpretation of the results, although speculative, underscores the hypothesized associated with the aggressor role. One could assume that since there were no significant differences between roles, girls may be have been inclined to use a wide variety of pronouns when construct a narrative. The social nature of relational aggression incidents seems to necessitate a description of others' judgments or actions and their interaction with others.

5.1.4 Linguistic Variation Across Real Life and Hypothetical Scenarios

The results strongly supported the third hypothesis, which proposed that the use of intuitive and rational language would significantly differ in real life versus hypothetical dilemmas, reflecting a greater reliance upon intuitive language when one is personally involved in a real-life decision that and exhibit greater rationality in discussing role-playing than hypothetical scenarios. As hypothesized, first person pronouns were used at almost twice the rate in students' discussions of role-playing dilemmas as in their discussions of the hypothetical scenario, and conversely, the use of second and third person pronouns was more than 50 percent higher in the hypothetical scenario than in the role-playing interviews. The use of first person pronouns was also higher when students discussed each of the roles they played – as bullies, victims, and bystanders – than when they discussed a hypothetical scenario.

It was expected than real-life, role-playing scenarios would elicit a higher number of first person pronouns. This finding is especially interesting in view of Monin, Pizarro & Beer's (2007) suggestion that rationalists favor first-person hypothetical moral dilemmas. According to Monin, Pizarro & Beer (2007), participants resolve personal dilemmas with a greater emphasis on first-person decision-making whereas emotionalist approaches tend to favor third person moral situations, reflecting "a view of morality as governed by quick intuitions and emotional reactions to infractions" (p.10). These approaches focus on the third-person perspective of the transgressions of others.

Together with the prior results showing that there were no significant differences between the roles, these findings could indicate that regardless of whether girls define themselves as bullies, bystanders, or victims—how they construct rational and intuitive language to make sense of their experiences in each of those roles-pronouns vary as a function of hypothetical and real-life scenarios. In evaluating these results, it is important to consider that pronoun usage is highly context dependent. Pronouns are seen as embedded in a context where care-focused and justice-focused dilemmas are a salient part of how girls use language to construct, evaluate, and resolve moral problems. These findings shed further light on the importance of using real-life dilemmas to capture females' different modes of moral thinking in relational conflicts based on such concepts as connection, relationships, and the self in relation to others (Gilligan, 1988). Real-life dilemmas more clearly distinguished females' moral decision processes and better predicted their moral reasoning than did reasoning regarding hypothetical dilemmas (Gilligan, 1988; Brown & Gilligan, 1992). Similarly, neural systems associated with emotions are activated more by personal than by impersonal moral dilemmas (Greene et al., 2001; Greene et al., 2004).

5.1.5 Moral Justifications

Finally, a qualitative content analysis showed that girls were more likely to provide more rational and fewer intuitive justifications when they discussed their real-life, role-playing as bystanders than when they discussed a hypothetical scenario. These results contrasted with Haidt, Björklund, & Murphy's (2000) finding that participants were more dumbfounded by moral intuition stories and non-moral intuition tasks than a moral reasoning dilemma.

The developmental shift from intuitive to rational moral justifications was more pronounced in the hypothetical scenario than in the real-life scenario. However, justifications in the real-life scenario shifted from all conventional responses in year 1 to equal thirds of safety, relational, and transformational responses in year 2. In contrast, there was no change in the justifications, which were relational and safety, in the hypothetical scenario across the two years. Intuitive justifications declined from year 1 to year 2 in the real-life scenario, and disappeared from the hypothetical dilemma in year 2. These findings were in contrast to Selman & Feigenberg (2010) conclusion that that adolescent girls' decisions heavily depend on their perceptions and contexts because there was much more stability in the kinds of justifications adolescents provided. Taken together, these findings from this study have a number of theoretical and practical implications.

5.2 Theoretical Significance of the Study

This dissertation presents the first theoretically and empirically driven longitudinal study on language production in morality related to relational aggression. This thesis contributes to the scientific literature in moral psychology, sociolinguistics, and education by introducing a new level of scope, precision, and depth to the understanding of adolescent's language use, and the complex relations between intuitive and rational processes reflected in

adolescent girls' language. This contribution is potentially very important, because of the dearth of research and inconclusive findings in these areas, and this seems to be a highly promising area for empirical and theoretical advances.

This study can provide a foundation to further examine the extent to which language is used to construct an understanding of moral issues (i.e. understand and interpret the socio-moral judgments and behaviors of their peers), or merely reflects one's moral understanding. Findings about the relation between language development and aggression are important in understanding the early stages of academic failure, internalizing and externalizing disorders (Bonica et al. 2003), social maladjustment (Crick, 1996), and other co-morbid problems relationally aggressive children are at risk for. It seems important to use a longitudinal design to develop a broader understanding of the causes and development of relational aggression. The longitudinal design of this study provided insight into the direction of the effects by examining the unfolding of language use over three years, providing valuable information about the development and stability of relational aggression in adolescent girls. More generally, the findings underscore the need to intervene in girls' emergent stages of age-related social interactions. Supporting this, Baumgartner & Strayer (2008) argue against the notion of a single developmental pathway leading to effective management of interpersonal conflict.

Perhaps more important, these supportive results strongly support the idea that the language used by girls to describe and discuss their moral judgments can provide a methodology for empirically measuring and distinguishing intuitive and rational language. This was the first study to extend a sociolinguistic methodology and analyses of moral language, making it possible to identify language that is more likely to or require rapid, intuitive thinking, or more deliberate and conscious processes of reasoning. Integrating the

dual processing approach and my proposed moral language use methodology provided an initial framework for studying moral decision-making and some of its developmental trajectories in adolescent girls. The primary advantage of this method lies in its potential to reveal the ways in which language use differs when switching from System 1 (intuitive) type processing to System 2 (rational) type processing. The language production measures can therefore provide potentially powerful tools for characterizing and evaluating moral language in future research.

The MLUET complements and strengthens existing methodologies and tools that document moral language (e.g. Gilligan, 1988; Brown & Gilligan, 1993). For instance, Gilligan and her colleagues changed methodology in moral psychology with their use of narrative and hermeneutics, and their readers guide helped reveal "the complexity of voice and relationship" in girls' language and "sense of themselves." This study systematically examines the formal properties of language, rather than simply discussing how girls use a language of morality metaphorically (Gilligan, 1988) and Brown & Gilligan (1992) This study explains and deconstructs and disentangles how adolescents speak in a "polyphony" and "orchestration" of sounds (Brown & Gilligan, 1992), by providing a linguistic examination of language production. Computerized text analysis programs such as the LIWC are beginning to correlate language use to broader social and psychological processes (e.g. emotional states, social relationships, thinking styles). However, the word usage approach to the study of naturally occurring language is still a crude representation of psychological processes is in its earliest stages (Tausczik & Pennebaker, 2010). Tausczik & Pennebaker (2010) note that the LIWC "represents only a transitional text analysis program in the shift from traditional language analysis to a new era of language analysis" (p.38). The findings from this study

support the idea that linguistic, psychological, and parametric dimensions in the moral domain can be reliability identified, to a large degree, by the LIWC. The MLUET expands the constellation of word categories to provide a sense of how LIWC language categories tap both intuition and rationality. In other words, the MLUET extends the LIWC word-based analysis by demonstrating that rational and intuitive languages are related in the moral domain.

5.4 Practical Implications of the Study

Both the quantitative and qualitative analyses of the language provide evidence that adolescent girls do shift from intuitive to rational styles of moral language, and exhibit greater rationality in discussing real-life than hypothetical scenarios. The findings of study may help girls change their modes of speech to help girls overcome quick, intuitive responses to fight back, flee, or take other actions unlikely to improve or resolve the situation. Since the girls' language may be malleable in an educational setting. This study can hopefully provide a foundation from which to pursue other potentially fruitful ways for resolving relational aggression conflicts.

Requiring only thoughtful, rational thinking without intuition or affect could result in students suppressing the feelings they experience. Children should be encouraged to shift not just from emotional to rational language, but to use their emotions. For example, emotions can be useful in moral reactions when they result quick and proper conviction of a moral transgression (Monin, Pizarro, & Beer, 2007).

Coloroso (2003) gave examples for how children can share their feelings to be more reflective and empathetic. Language can be changed so that girls are more likely to insist on being treated fairly "you can be angry at me, but you can't hit me." For example using "This is how I felt" instead of "You made me angry" or "I need" instead of "You better do this, or I

won't be your friend" can teach girls to handle feelings assertively, acknowledge them, and handle them. However, the language terms and uses associated with moral judgments have not been studied systematically study across the dual processing literature or sociolinguistics to permit inferences about how adolescent females construct language to understand and interpret the socio-moral judgments and behaviors of their peers.

Kikas et al. (2009) acknowledge that language is an important way to control behavior and emotions (Cole, 2001; Vygotsky, 1934/1997). While some approaches aim to silence harmful or oppressive speech (Applebaum, 2003), this study gives girls the opportunity to present their intuitions and thoughts about relational aggression through their own voices. Changing the language can help to positively impact the roles girls play in relational aggression and the surrounding environment or climate of a school (Coloroso, 2003). Thus, the research may have implications for the practical need for pedagogical interventions and moral education programs that can potentially reduce relational aggression and enable adolescent girls to better handle conflicts and reconciliations. This may eventually help to define, implement empirically supported programs for developing strategies and educational interventions to promote moral, and meta-cognitive reasoning, and to increase pro-social behavior and development in girls.

Several cognitive-developmental educational interventions have been carried out to promote moral reasoning (e.g., Berkowitz & Oser, 1985; Power, Higgins, & Kohlberg, 1989; Rest, 1979), primarily through peer moral dilemma discussion (Berkowitz, 1985) and the Just Community approach (Kohlberg, 1985). Students were challenged to articulate and reason through critical discussion of the dilemma as individuals and in groups until a resolution was achieved, with the goals of trying to figure out the best moral solution. Berkowitz & Gibbs

(1983) demonstrated that moral discussions in which peers focus critically on each others' reasoning promote the most development.

One of the most prominent current approaches in moral education is Narvaez's Integrated Ethical Education (IEE; Narvaez, 2006), which offers a holistic approach that combines traditional character education and rational moral education. The IEE emphasizes gaining "ethical know-how" in Rest's (1984) four skills: ethical sensitivity, ethical judgment, ethical motivation, and ethical action. Graham, Haidt, & Rimm-Kaufman (2008) indicate that Narvaez (2006) does give adequate attention to emotions and intuitive responses. However, school-based emotion education curricula have included teaching of emotional regulation and engagement (Rice, Levine, & Pizarro, 2007) to reduce maladaptive behavior (Pizarro & Salovey, 2002). However, little is said about how automatic moral judgments should be incorporated into moral education programs (Graham, Haidt, Rimm-Kaufman, 2008). The proposed thesis will fill that gap by addressing how students' intuitive moral reactions can be cultivated. Subsequent intervention programs can potentially be developed on the basis of these existing interventions, but could focus on strategic use of language or targeted certain verbal skills to promote positive interactions with others. Perhaps students' language use could be channeled towards healthy coping strategies to improve students' abilities to manage interpersonal conflicts as part of these broader interventions.

5.4 Limitations and Future Research

The findings from the current study provide a foundation for understanding the development of moral language in adolescence, but the interpretation of the results need to be viewed as preliminary and should therefore be treated with caution.

There are a few measurement issues concerning the relation of measures to the

outcomes. Because this is the first study to demonstrate an association between moral judgment and language use, future longitudinal studies should replicate this work to determine the reliability and generalizability of the MLUET. This dissertation does help lay the foundation for subsequent research studies to validate the MLUET categories as being more intuitive and rational. This can help to determine if these constructs reflect participants' discussion of their moral reasoning, or if they are using language to conceal their actual moral judgments.

Future work can help determine if the language people use to describe and discuss their moral decisions correlates with their processes of reaching those moral judgments. By providing linguistic indices of intuitive and rational properties for each participant, researchers can correlate specific properties of language from the MLUET with specific properties of moral judgment from independent measures for each participant and across participants. These scores would permit analyses of the relationship between language use and stages of moral development, and provide actual measures of the girls' moral development, particularly in relation to girls' justifications. Important and more detailed correlational analyses can now be conducted if the moral stage scores from a Moral Judgment interview with the same subjects are correlated with the linguistic results reported here. Future longitudinal studies are also needed to determine the developmental trajectories for relational aggression in both males and females in different developmental periods, and to gain a better understanding of the relationship across years of development.

This study relied entirely on students' self-reports to real life and hypothetical scenarios of relational aggression. This presents methodological limitations, concerning the subjective nature of understanding social interactions, and whether or not "people say what they mean or

mean what they say." Especially in an interview situation involving natural speech It can be difficult to interpret what a child intends to say because the mind's linguistic system is tacit (Lust, 2006; Blume & Lust, 2011). Some interviewers conducted more intensive probing than others, providing more extensive responses from the participants. Since relational aggression and language use were both measured with self-reports, estimates of the relationship between them may be biased by method variance. Agreement across adolescent girls suggests that this measure is likely capturing relational aggression to some extent, but it may miss aspects of this construct, as adolescents often underestimate their aggression. Adolescent students can be difficult to interview because of the way in which they simply respond, using monosyllabic answers ("yes" or "no") to questions (Bassett, Beagan, Ristovski, Slijepcevic & Chapman, 2008). On the other hand, self-reports can capture incidents of aggression that are not observable and known to others (Kikas et al., 2009).

Future studies could adopt the natural speech methodology to better assess the variation in numerous multi-word utterances, the discourse and pragmatic context, and the spontaneous reactions of the child (Blume & Lust, 2011). Utilizing natural speech data would be advantageous, because it is not determined by adult language, or influenced by controlled experimental conditions (Blume & Lust, 2011). Researchers should also extend assessments to measuring prosody and variations in supra-segmental features of speech production such as pitch, intonation, and rhythm (Lust, 2006), for each speech utterance at different points in time. Variations in voice quality, manipulated from transcripts, would provide an excellent indicator of emotional and intuitive states (Robinson, 1972). Intuitive and rational language might be better understood through a mix of assessment methods. Intuitive judgments may reflect subjects' first, automatic responses. If so, one promising approach could involve the use of

time-pressured decision tasks that measure reaction times in experimental settings, accompanied by a verbal language abilities assessments.

Although the study does utilize rich speech samples with a large number of utterances, the sample of 15 participants is largely homogeneous and relatively small so the conclusions drawn must be treated as tentative. Although this study used a convenience sample that limits the generalizability of the findings, it proved advantageous for this exploratory study. It is a good starting point for future research to replicate the study with a more heterogeneous sample by examining ethnically, culturally, and economically diverse populations.

Another major concern is that no metadata was collected on the participants' age, ethnicity, and socio-economic status (SES). This makes it impossible to determine whether age, SES, or ethnicity was responsible for the differences observed. Future studies should carefully examine the effects of age, culture, and SES on relational aggression to disentangle these results. However, all participants were from the same school, and observation suggests that this was a relatively homogeneous, middle-class, predominantly white sample.

Caution is warranted in assuming that language is always indicative of what people actually feel or think or is consistently predictive of behavior. When discussing language use, there is a large caveat: girls might use more intuitive terms but in a more rational way. The MLUET and LIWC will only show us the moral language use, but it does not show the actual reasoning, but this is an area for future research. For example, girls may say, "I feel that..." instead of "I think that…" The MLUET would place the former in the intuitive category, but the actual meaning of the girl's statement could indicate a rational cognitive processing of the information. In fact, one's experience of emotion or intuition can often differ from the way it is reported. The meaning of language is distinct from thoughts or concepts related to those

meanings (Lust, 2006). For example, tentative speakers could be engaged in slow, effortful thinking while "fluent, glib speakers" may not be generate speech without any conscious analysis (Aitchison, 2008).

In conclusion, this dissertation has provided a useful first step in the investigation of intuitive and rational language by delineating several variables for the characterization and evaluation of moral language production measures. Combining the dual processing approach and a proposed moral language use methodology has provided an initial framework for studying moral language and some of its developmental trajectories in adolescent girls in the study of relational aggression.

In the light of these developments, I maintain that this research can potentially reduce relational aggression and enable adolescent girls to better handle conflicts and reconciliations through their construction and control of language. By building upon and extending the work of researchers examining adolescents' language and morality (e.g. Eckert, 2003), this research has the potential to unify lines of inquiry spanning socio-linguistics, moral psychology, and education. Establishing a stronger relationship between these language use and morality will help lay the groundwork for being able to evaluate whether girls' use of language correlates with their moral judgments. I am now looking forward to research on the multiple and complex ways language and morality interact in language use.

Appendix A: Interview Protocol

(From Schrader's Adolescent Girls' Relational Aggression Longitudinal Study (GRLS), 2005)

Initial Interview

The first meeting of the girls will be an interview to talk about their conceptions of relational aggression. The first questions will be around the definition of the term, the roles they observe girls play in relationally aggressive situations, and a focus on the role of bystanders in the situation.

Questions will include the following, but will be generated depending on what the girls want to talk about. Girls will be handed a list of the questions as a piece of paper to hold and read, in many instances, this makes them feel more comfortable.
General definitions:

- In what ways are girls mean to each other?
- In what ways are girls who are friends with each other mean to each other?
- How would you define "relational aggression"?

Roles and behaviors of bystanders:

- What do girls do when they see aggressive/mean things happen?
- Why do you think they do that?
- What gets in the way of stopping the aggression?
- What is a bully, victim, bystander?
- I'll explain some roles that bystanders play in relational aggression. Tell me if you know of anytime that you have seen these roles (see Relational Aggression Model). Please do not tell me the names of girls who do these things. Have you seen anyone change their role from one of these roles to another one? Why do you think that may have happened?

Influences:
Do the following have anything to do why girls are mean to each other? How?
Do the following have anything to do why girls don't stand up and help another? How?

- Popularity
- Cliques
- Media
- Boys/romance/sexuality
- Competition
- Gossip

Moral Atmosphere:
Now I would like to talk to you about your ideas about your school.
How would you describe the social atmosphere of your school?

(Prompt: is there respect for one another, caring, support, acceptance of differences)
Do you feel safe emotionally? Physically?
What helps make you feel safe?
How do you feel when you see an incident of relational aggression/girls being mean to each other? What does it make you want to do? What do you wish you and/or others would do?
What would be your idea of an ideal school atmosphere/culture/environment? What would interfere with that?
What would be your idea of an ideal relational atmosphere/culture/environment?

Self Questions: (adapted from Kegan, 1982)

Tell me about a situation in your life where you felt (choose one): torn, proud, sad, or happy with other girls. Which one would you like to talk about?
What did you value most (think was most important to you personally) in the situation?
What was your role in the situation? Or, What did you do?
What got in the way of, or competed with, doing what you thought was right or best, or what you valued most? Was it some kind of "threat" to who you are? Tell me about that.
Is there anything that you would do differently? Why or why not?
What would you change about the situation, what you did, or how you reacted? What/Why?

Interview II:

Before the interview, ask:
Was there anything that you wanted to say in the last interview you thought about later and wanted to add?

This interview has three parts, the Moral Judgment Interview, the Metacognitive Interview that reflects on one's thinking about the MJI, and a real life interview.

Part A:
MORAL JUDGMENT AND MORAL METACOGNITION

Dilemma II Form B (Colby and Kohlberg, 1987) from the Moral Judgment Interview (MJI)

(This dilemma was selected for this study since it has to do with girls, promise keeping, a close relationship such as sisters might have, and authority—issues that may be most related to relational aggression)

Judy was a 12 year old girl. Her mother promised her that she could go to a special rock concert coming to their town if she saved up from babysitting and lunch money so she would have enough money to buy a ticket to the concert. She managed to save up enough money for the ticket plus another $20. But then her mother changed her mind and told Judy that she had to spend the money for new clothes for school. Judy was disappointed and decided to go to the concert anyway. She bought a ticket and told her mother that she had only been able to save $20. That Saturday she went to the performance and told her mother that she was spending the day with a friend. A week passed without her mother finding out. Then Judy told her older

sister Louise, that she had gone to the performance and had lied to her mother about it. Louise wonders whether to tell their mother what Judy did.

1. Should Louise tell their mother that Judy had lied about the money or should she keep quiet? Why or why not?
2. In wondering whether or not to tell, Louise thinks of the fact that Judy is her sister. Should that make a difference in Louise's decision? Why/why not?
3. Does telling have anything to do with being a good daughter? Why/why not? A good sister? Why/why not?
4. Is the fact that Judy earned the money herself important in this situation?
5. Is the fact that the mother promised she could go to the concert if she earned the money the most important thing in this situation? Why/why not?
6. In general, why should promises be kept?
7. Is it important to keep a promise to someone that you don't know well and might never see again? Why/why not?
8. What is the most important thing a mother should be concerned about in relation to her daughter? Why is that most important?
9. What is the most important thing a sister should be concerned about in relation to her sister?
10. In general, what should a mother's authority be over her daughter? Why?
11. What is the most important thing a daughter should be concerned about in relation to her mother? Why is that the most important thing?
12. What would you say is the most responsible thing for Louise (as a bystander) to do in this situation?

Part B:
METACOGNITIVE INTERVIEW (MCI)
(Adapted from Schrader, 1988)

1) Thinking back over the dilemma I just read about Judy and Louise, how did you know how to approach the problem or how to think about it? How did you know to do that? Were you aware of what you were doing at that time?

2) What did you consider in deciding how to solve it?

3) How did you know what to consider? What were the best things to consider?

4) Were you aware of a strategy or some approach or way of thinking that you were using to solve the dilemma? What was it? Were there other ways of thinking about it? What were they? Why didn't you do that instead?

5) Did you consider that strategy/approach/way of thinking to be the best one to use in order to solve the dilemma? How did you know it was the best?

6) Did you consider alternate strategies or ways of thinking? If so, how did you choose the one you chose?

6b) Do you think other people have different strategies or ways of thinking? What do you think they are? Are they just as good as the one you used? How do you know?

7) How did you know when the dilemma was resolved or when you reached an adequate solution?

8) Thinking back about how you thought about solving this dilemma, can you summarize the steps or the process that you used to think about the dilemma? Looking back now, how did you know how to think about it that way?

8) Would you change your approach to the problem or your answers because of talking about it in this interview? How/Why?

9) Were you aware of your thinking processes while you were solving the dilemma earlier, or were you able to reconstruct your process just because of this interview?

PART C:

(Adapted from Gilligan's Real Life Interview; Rest's 4 component model: Moral sensitivity, moral judgment, moral motivation, moral character, and the metacognitive questions above.)

- Describe a situation of girls being mean to each other that you know about.
- What was the situation? How did you become aware of it?
- Was there a conflict for you? What was it?
- Was there something that you could see as being right or wrong to do in that situation? What was it?
- What kinds of things did you think about in dealing with the situation?
- What were the most important things to consider in deciding what to do? How did you know?
- What did you do? Why?

- Now that you think back on the situation, were you aware of a strategy or some approach you were using to solve it? What was it?
- Did you consider that strategy to be the best one to use? How did you know it was?
- Did you consider alternative ways of thinking? (if so), how did you choose the one you chose?
- How did you know when you reached a solution? Was that the best solution? How did you know?
- Thinking back over the situation again and how you thought about it at the time, were you aware of your thinking about your decision process at that time, or are you able to construct what you thought about as we've been talking about it?
- Has this interview affected your thinking in any way?

Interview III:

RELATIONAL AGGRESSION INTERVIEW (RAI)

I'm going to read aloud a situation of relational aggression. I would like to know how you might think about this dilemma. (note to interviewers: use your judgment about the flow of the conversation in asking the questions. Make sure they are all asked, but the order and wording may differ slightly depending on interviewee.)

Cassie was the leader of the group, always being the one who organized the other girls for things to do. Dixie, Alana and Karen were friends too, sitting together at the lunchroom table every day. One day at lunch, Cassie said that they would all go to the movies together on Saturday afternoon. That afternoon Cassie told Dixie and Alana that she didn't really want Karen to come to the movie even though she was in the group when they all decided to go, and if they didn't agree with her, then that person could just not come, too. Dixie agreed and said she didn't think Karen fit in the group because of the clothes she wears, and Alana was silent because she was torn—she wanted to go with the girls but didn't want to hurt Karen's feelings. So, Cassie told Dixie to call Karen on the phone that night and say that none of the girls were allowed to go to the movies. Cassie listened in on the conversation. Karen was disappointed, but was devastated when she went to the movie anyway with her family, and saw all the girls there together. To make matters worse, Cassie, Dixie and Alana were whispering about Karen behind her back, rolling their eyes at her, and then Cassie finally came over and said, "We hope you don't have hurt feelings, but we just wanted to go with our *BEST* friends. At the end of the movie, the three girls talked loudly so Karen could hear about how they were all going to have a sleep-over party later that evening.

(In years 2 & 3 a composite of participants' actual experiences will be presented as the scenario)

Part A:
Do you think this is relational aggression? Why/why not?
Was this the right thing or a good thing to do? Why/why not?
What should have and could have been done differently here?
What were the right things to do here? What were the wrong things? Why?
What risks are involved (what is at stake) for Dixie and Alana if they tried to include Karen?
What would get in the way of Alana speaking up to include Karen?
What should Karen do?
What would get in the way of Karen standing up to her friends and telling them that they were being mean?
Who was the bully? Who was the victim? Of all the girls, who was in the position to do something good?
Why would someone do something good? Why should they?
How/why do you think that Karen was strong enough to stand up to her friends in this situation? Could you see yourself doing that? Why/why not? What gets in the way of standing up for yourself or standing up for other people against someone who is being mean?

Moral emotions:
How do you think Cassie, Alans, Dixie and Karen each felt in this situation?
How would you feel in this situation (be clear about which role/roles they are discussing)?
Would your feelings change depending on what you did in this situation? How would they change, and why?

Part B:
I would like to ask you about different roles that people have identified in situations where there is aggression among girls. In school, girls have been in on e or all of these roles, and I would like us to talk about each one and how you experienced them. (If the time is short, I will ask only about Bystander Roles) [Note: all these questions may not be asked in turn, but they will be used to guide the interview]

Interview III, part 2:

Aggressor role:
Have you ever been a bully or mean to other girls who are your friends? What happened/what was the situation (include who was involved)? Why did you do that? What were you hoping would come out of that? What did other people (bystanders) do, or say to you? How did you respond? What did the target/victim do? How did you feel about that? How did you feel after it was over? Did that situation change the way you interact with your friends---If yes, how so? Would you do something that again--why/why not? What do you think other people should do when they see you act this way? Why?

Bystander role:

Have you ever been a bystander when something mean was happening? what happened? Why did you do that? What were you hoping would come out of what you did? What did other people (bystanders) do, or say to you? How did you respond? What did the target/victim do? Did they try to get your help? How did you feel about that? How did you feel after it was over? Did that situation change the way you interact with your friends---If yes, how so? Would you do something that again--why/why not?
Did you see yourself changing your role in the situation at any point--from bystander to bully; to target; to a different kind of bystander? What do you think caused that change?

Victim/Target Role

Have you ever been a victim of relational aggression? What happened? Who was involved? How did you feel? Did anyone help you? What did they do? Was that effective? Do you wish anyone would have helped you/done something more? What could someone have done to help you? Why do you think they did/didn't do that? What would/did get in the way of helping you?

Did you change your role in that situation by becoming mean or a bully yourself? How did that happen? How did you feel about that?
How has this situation affected your friendships?
How has this situation affected how you act toward other girls? Are you more likely to help or stand up for others because you have been a victim?--why or why not?

Do you consider yourself a moral person?/a person who mostly does the right thing? What is a moral person? What would keep someone from acting morally or from doing what they know is the right/good thing to do?

How can girls learn to be nicer to each other and treat each other with respect? What can YOU do to make your friendships more kind and respectful?

Appendix B: Parental Consent Form

Your child is invited to be in a research study about meanness and indirect (not physical) aggression among girls her age. She was selected because she is in the age range we are interested in studying. The study is conducted by Professor Dawn E. Schrader at Cornell University. She can be reached at des14@cornell.edu or at 255-9258 for any questions about the study at any time. Please read this form and ask any questions before agreeing to allow your child to take part in this study.

The study: The purpose of this study is to better understand how girls think about meanness and bullying between girls their age, why girls help or don't help others who are in that situation, and if that changes as they grow older. We are asking that your child take part in one small group discussion with girls her age (30-40 minutes) and two individual interviews (also about 30-40 minutes each) each year for three years. The total time your child will be asked to commit to this study is less than 2 hours each year. Examples of questions that your daughter will be asked include: "In what ways are girls mean to each other?", and "What do you think about and do when you see girls being mean to each other?" During these interviews your child will be asked to talk about a situation we give to them. They may also talk about girls being mean to each other and what girls might do when that happens.

Risks and benefits: It is possible that your daughter will remember bad things that have happened to her when we ask her questions about meanness among girls. There is a risk that others may deduce your daughter is in the study by seeing her meet in for interviews. A possible benefit of the study is that your daughter may realize that she is not alone, and that other girls have also experienced these things, and that they may be ways to help others.

Compensation: Your daughter will receive a small gift to thank her for her time in each part of the study. Snacks and drinks will be served at the individual interviews.

Confidentiality: The records of this study will be kept private—false names and numbers will be used to identify your daughter's responses. Your daughter will not be identified by name or any other identifying characteristic in the final research reports. The interviews will be audio-recorded. The recordings will not be shared with the school. The school will not be told what your daughter says during the study unless your daughter or you tell them. However, researchers are required by law to report child abuse, and you should understand that if we learn about child abuse, state law requires that we have to report it.

Video recordings and the consent forms signed by you and your daughter will be kept securely along with the results of the study indefinitely. We will keep them because we might want to contact your daughter in the future. Studies that interview girls several times across years are rare. If we decide to contact her in the future, we will ask your permission if she is under the age of 18 at that time.

Unless you and your daughter give your permission, the audio tapes will be viewed only by the researchers involved in this study. However, we would like to ask your permission to use parts of the audio recordings at academic conferences. It would be useful to hear girls' own voices

and words at professional conferences because bullying and meanness among girls is best understood from girls themselves. However, this decision is entirely up to you and you daughter. If you give us permission to use the audiotapes in presentations, your daughter's name and school will not be revealed. Please indicate your decision below:

If you do NOT want the audio used at a professional conference, please sign here_____.

Voluntary nature of participation: Your decision whether or not to allow your child to be part of the study will not affect your current or future relations with Cornell University or with your child's school. You are free to withdraw your child at any time without affecting your relationship with the University or your child's school. Furthermore, your child may refuse to participate or discontinue participation at any time.

If you have any questions or concerns about your child's rights as a research subject, you may contact the Cornell University Committee on Human Subjects (UCHS) at 607-255-5138, or you may access their website at http://www.osp.cornell.edu/Compliance/UCHS/homepageUCHS.htm. You will be given a copy of this consent form for your records.

"I have read the above information, and have received answers to any questions I asked. I consent to allow my child to participate in the study. I understand that the interviews will be audiotaped. I understand that researchers will call me and my daughter at home to arrange interview times."

Parent's name: _____ Child's name: _____

Signature of Parent _____ Date _____ phone number:_____

This consent form will be kept by the researcher for at least three years beyond the end of the study and was approved by the UCHS on [date].

Appendix B: Child Assent Form

We are doing a study to try to learn about meanness and bullying between girls your age. We would like you to be in the study so that we can learn more about what girls think and how girls feel about meanness and bullying. We also want to know if girls change their thinking about meanness and bullying over time.

If you agree to be in our study, we are going to ask you to take part in 3 interviews each year for the next 3 years with the researchers from this study. One interview will be in a group with other girls in your grade, and two interviews will be with you and a researcher. During the interviews, we will ask you questions about the ways that girls are mean to each other and about how you feel when you see girls being mean to each other. We will want to know if you think it is possible to help girls who other girls are being mean to. We will also want you to answer some written questions about meanness between girls, and to watch a video clip about this topic and tell us what you think about it in a small group with other girls your age.

If you agree to be in our study, the things you say to us during the interviews will be kept private. Other students or teachers in your school will not know what you told us unless you tell them what you said. However, if you reveal that you have hurt someone physically or been hurt by someone else, we must tell school authorities.

You can ask questions that you might have about this study at any time. Also, if you decide at any time not to finish, you may stop whenever you want. Remember, these questions are only about what you think. There are no right or wrong answers because this is not a test.

If you sign this paper, it means that you have read this and that you want to be in the study. If you don't want to be in the study, don't sign the paper. Remember, being in the study is up to you, and no one will be mad if you don't sign this paper or if you change your mind later.

Name of Participant (Print)_____ Grade _____

Signature of Participant _____ Date _____

Teacher (or Homeroom Teacher) _____

APPENDIX C: LIWC Data for Each Participant

Participant	Interview	Grade	Word Count	Words Per Sentence	Pronouns	Personal Pronouns	Imper-sonal Pronouns	Adverbs	Prepo-sitions	Conjunc-tions	Swear	Affect	Cogni-tion	Percep-tion	Non-fluency	Filler
S2	MJI	5	926	21.05	25.7	18.47	7.24	5.18	8.64	10.26	0	6.59	29.81	2.16	0.32	0.54
S3	MJI	5	1263	15.04	20.59	13.86	6.73	6.1	8.39	11.48	0	7.52	23.91	2.85	1.74	0.4
S4	MJI	5	347	18.26	24.5	18.16	6.34	4.61	6.92	14.99	0	10.37	25.07	1.73	0.86	0.86
S5	MJI	5	829	18.42	22.8	13.87	8.93	5.55	7.72	13.03	0	10.62	25.69	2.77	0.24	0.48
S6	MJI	5	1027	29.34	22.69	15.97	6.72	7.89	6.72	12.46	0	9.44	29.21	1.66	3.31	1.17
S7	MJI	5	1095	12.3	23.01	15.89	7.12	5.66	9.04	11.51	0	9.22	26.12	1.46	3.2	0.64
S8	MJI	5	1390	30.89	25.68	16.26	9.42	6.62	8.71	12.59	0	6.26	23.45	2.3	2.23	0.72
S9	MJI	5	2127	48.34	24.68	14.2	10.48	9.26	8.37	9.17	0	6.77	29.95	2.02	1.13	1.46
S10	MJI	5	470	15.67	27.45	18.51	8.94	5.53	8.72	10.43	0	5.74	28.72	1.06	1.49	0.64
S11	MJI	5	758	21.06	26.39	19.26	7.12	7.92	8.58	12.14	0	8.18	27.97	2.24	3.3	1.58
S12	MJI	5	564	16.11	22.87	15.6	7.27	6.56	10.46	12.06	0	6.38	25.53	1.06	1.42	0
S13	MJI	5	442	6.5	25.79	18.55	7.24	7.69	6.56	10.63	0	5.43	24.21	1.36	2.71	0
S16	MJI	5	831	13.85	22.98	15.04	7.94	5.42	7.34	11.31	0	7.1	30.08	1.32	0.72	0.36
S2	MJI	6	1328	21.42	22.82	13.33	9.49	7.3	9.04	10.84	0	6.85	27.26	2.18	1.51	0.83
S3	MJI	6	628	16.53	23.09	16.24	6.85	7.01	8.28	12.26	0	5.1	25.64	0.96	2.55	1.11
S4	MJI	6	1147	19.78	27.99	16.3	11.68	6.8	6.97	13.78	0	7.85	28.77	0.78	0.35	2.7
S5	MJI	6	714	19.3	24.09	16.53	7.56	9.52	9.24	10.64	0	5.18	27.17	1.96	0.56	3.22
S6	MJI	6	604	16.78	25.17	13.91	11.26	6.46	7.62	13.25	0	7.95	30.79	0.99	1.32	4.64
S7	MJI	6	685	15.93	21.9	16.35	5.55	6.42	7.3	13.87	0	6.28	29.2	1.9	0.58	2.63
S8	MJI	6	1185	19.75	29.96	18.9	11.05	4.73	7.43	10.04	0	5.32	28.86	1.86	0.25	0.25
S9	MJI	6	1365	16.65	24.47	16.12	8.35	7.47	7.84	11.14	0	5.05	27.69	1.1	0.66	1.61
S10	MJI	6	955	23.29	25.97	16.75	9.21	9.32	6.91	13.3	0	7.43	29.74	1.15	2.41	2.41
S11	MJI	6	1171	16.97	22.03	12.98	9.05	7.17	9.91	11.53	0	8.54	27.67	1.54	1.11	1.37
S12	MJI	6	790	18.37	24.18	15.57	8.61	6.96	13.67	11.77	0	5.57	26.84	1.14	0.63	0.38
S13	MJI	6	908	11.35	24.01	14.43	9.58	6.39	9.03	10.57	0	5.4	23.79	1.54	0.99	2.31
S14	MJI	6	374	16.26	27.81	16.84	10.96	5.61	7.49	12.3	0	8.02	26.74	1.6	0.8	1.6
S15	MJI	6	600	24	24	14.83	9.17	8.5	8	9.33	0	8.5	27.83	1.83	2	2.67
S16	MJI	6	478	15.42	20.71	14.02	6.69	7.53	7.74	10.46	0	5.65	31.17	1.67	0	2.3
S16	MJI	6	453	18.12	19.65	14.13	5.52	5.52	9.71	11.92	0	5.74	29.8	2.21	0	0.88
S2	MJI	7	1025	21.81	24.78	15.71	9.07	9.07	11.12	7.71	0	6.24	25.95	1.37	1.76	2.24
S3	MJI	7	795	14.72	22.39	15.35	7.04	6.79	7.3	10.06	0	7.04	23.27	1.51	0.5	2.14
S5	MJI	7	784	17.82	22.07	13.27	8.8	6.89	10.46	10.84	0	5.74	27.55	1.53	0.51	2.42
S6	MJI	7	655	13.37	23.51	14.5	9.01	9.16	8.4	10.23	0	5.04	26.41	1.22	0.92	3.97
S7	MJI	7	1119	14.16	23.95	14.21	9.74	8.31	8.94	10.01	0	7.51	27.17	1.07	1.16	3.49
S8	MJI	7	642	26.75	29.28	18.22	11.06	3.89	8.1	12.93	0	6.54	28.82	1.09	1.4	0.47
S9	MJI	7	1006	20.96	24.35	17.3	7.06	9.05	9.44	9.84	0	5.67	31.91	0.99	0.5	1.59

S10	MJI	7	474	11.29	24.68	16.67	8.02	5.06	7.38	9.07	0	8.86	29.54	0.84	0.21	4.22
S11	MJI	7	1119	14.16	23.95	14.21	9.74	8.31	8.94	10.01	0	7.51	27.17	1.07	1.16	3.49
S12	MJI	7	720	16.74	26.53	15	11.53	7.36	10	8.89	0	5.69	26.94	1.25	0.42	1.11
S13	MJI	7	761	14.63	24.57	15.51	9.07	6.7	8.94	8.8	0	4.6	29.04	1.84	0.13	2.1
S14	MJI	7	942	12.56	20.38	13.48	6.9	5.84	12.21	8.39	0	7.01	24.1	1.91	1.38	3.4
S15	MJI	7	1866	27.04	22.56	14.15	8.41	6.65	9.16	12.65	0	7.5	27.6	1.45	0.59	4.13
S16	MJI	7	453	18.12	19.65	14.13	5.52	5.52	9.71	11.92	0	5.74	29.8	2.21	0	0.88

Participant	Interview	Grade	Word Count	Words Per Sentence	Pronouns	Personal Pronouns	Imper-sonal Pronouns	Adverbs	Prepo-sitions	Conjunc-tions	Swear	Affect	Cogni-tion	Percep-tion	Non-fluency	Filler
S2	MCI	5	629	16.13	22.42	13.99	8.43	6.52	9.38	10.33	0	3.5	32.11	0.48	0.48	0.32
S3	MCI	5	688	17.2	20.64	12.21	8.43	9.45	10.03	10.17	0	5.23	23.69	3.2	2.33	1.45
S4	MCI	5	319	13.29	26.02	14.42	11.6	4.7	13.48	9.4	0	6.58	27.59	2.19	1.25	0.94
S5	MCI	5	421	16.19	21.38	10.69	10.69	4.99	12.83	12.11	0	4.28	28.74	0.71	0.71	0.95
S6	MCI	5	842	26.31	19.48	12.83	6.65	9.62	12	11.05	0	7.36	32.42	1.07	1.78	0.59
S7	MCI	5	244	8.13	22.95	12.7	10.25	7.79	9.43	9.84	0	4.92	25.41	0.82	4.1	0.82
S8	MCI	5	1712	27.17	21.5	11.45	10.05	5.84	9.58	11.97	0	4.96	23.6	3.27	2.34	1.87
S9	MCI	5	1029	44.74	19.73	11.37	8.36	10.59	10.01	9.43	0	5.25	31.68	1.85	1.46	1.46
S10	MCI	5	96	8	21.88	6.25	15.62	10.42	12.5	4.17	0	5.21	27.08	0	0	1.04
S11	MCI	5	426	15.78	25.12	13.38	11.74	7.04	9.39	8.22	0	3.76	27.7	3.29	3.05	0.7
S12	MCI	5	691	17.27	19.68	11	8.68	5.93	10.27	12.16	0	3.91	26.77	1.59	1.88	0.72
S13	MCI	5	119	4.41	21.01	15.13	5.88	4.2	9.24	7.56	0	5.88	26.89	0.84	3.36	0
S14	MCI	5	797	28.46	25.47	15.56	9.91	7.4	10.29	11.92	0	6.02	28.61	1.88	2.26	1.38
S16	MCI	5	476	9.33	16.6	8.61	7.98	9.03	11.13	12.18	0	6.09	26.89	0.84	2.1	0.21
S2	MCI	7	1278	18.26	21.91	12.44	9.47	12.6	11.19	8.76	0.08	6.26	28.25	2.35	2.03	2.27
S3	MCI	7	737	11.52	25.92	18.05	7.87	7.06	6.38	9.36	0	7.73	29.72	1.9	0.27	1.76
S5	MCI	7	1268	18.65	21.45	12.85	8.6	9.46	12.62	9.86	0	4.1	34.46	1.5	0.08	0.47
S6	MCI	7	1125	17.86	22.4	15.73	6.67	11.64	9.33	9.78	0	6.13	29.24	1.24	1.33	4.09
S7	MCI	7	964	10.95	22.93	14.63	8.3	12.14	10.89	8.3	0	5.39	31.74	3.42	0.93	3.94
S8	MCI	7	1321	19.72	27.4	15.97	11.43	8.4	8.86	12.49	0	4.39	27.78	1.82	0.76	1.44
S9	MCI	7	1728	19.42	26.04	17.13	8.91	10.07	12.27	10.36	0.17	6.83	29.28	1.91	0.41	1.27
S10	MCI	7	867	7.88	23.64	14.07	9.57	11.3	9.46	7.73	0	4.61	31.37	1.27	0.58	3
S11	MCI	7	967	10.99	22.85	14.58	8.27	12.1	10.86	8.27	0	5.38	31.64	3.41	0.93	3.93
S12	MCI	7	993	13.99	25.28	14.1	11.18	9.97	11.48	8.66	0	6.04	28.4	1.21	1.11	1.11
S13	MCI	7	978	13.22	27.1	16.36	10.74	10.22	11.66	9.1	0	4.81	33.03	2.56	0.51	1.12
S14	MCI	7	520	9.45	24.04	14.42	9.62	12.12	10.96	6.54	0	5.38	27.12	1.35	1.73	2.69
S15	MCI	7	2552	18.63	21.55	13.44	8.11	8.15	10.42	11.79	0	6.11	28.57	3.13	0.9	3.68
S16	MCI	7	542	10.23	23.43	16.79	6.64	7.56	10.15	7.75	0	6.64	32.1	2.21	0.18	1.11

Participant	Interview	Grade	Word Count	Words Per Sentence	Pronouns	Personal Pronouns	Imper-sonal Pronouns	Adverbs	Prepo-sitions	Conjunc-tions	Swear	Affect	Cogni-tion	Percep-tion	Non-fluency	Filler
S3	RAI	5	962	14.15	23.7	17.78	5.93	8	9.25	8.32	0	10.71	28.38	3.95	3.12	1.25
S6	RAI	5	232	16.57	19.4	14.22	5.17	7.76	9.91	11.21	0	9.48	28.45	1.29	3.02	1.29
S7	RAI	5	583	12.4	20.75	13.89	6.86	7.38	9.78	10.12	0	3.09	28.13	2.4	1.54	0.86
S8	RAI	5	1364	23.12	25.29	16.79	8.5	4.69	10.63	10.19	0	5.13	27.64	3.15	0.15	0.88
S9	RAI	5	444	14.8	19.37	11.04	8.33	9.01	7.21	10.36	0	5.63	5.86	0.23	0.68	5.18
S10	RAI	5	910	12.47	24.73	18.57	6.15	7.91	8.35	10.11	0	6.26	31.1	2.2	2.31	1.32
S11	RAI	5	1103	33.42	23.57	16.77	6.8	8.52	9.97	8.7	0	5.98	28.83	3.54	5.53	3.26
S12	RAI	5	1093	22.31	20.95	14.73	6.22	8.33	12.81	11.8	0	4.85	29.46	1.01	0.64	0.64
S13	RAI	5	747	10.83	24.77	19.01	5.76	6.96	11.24	8.3	0	5.09	30.25	2.01	0.67	0.4
S15	RAI	5	1646	33.59	22.24	15.49	6.74	7.59	9.48	11.18	0	9.66	29.53	2.19	3.28	2.31
S16	RAI	5	1132	13.8	17.76	12.63	5.12	8.75	12.01	11.66	0	7.69	31.71	2.65	0.62	0.97
S2	RAI	6	1081	18.02	23.59	15.73	7.86	7.4	9.81	10.36	0.09	7.86	28.12	4.26	2.31	2.04
S3	RAI	6	672	10.84	21.88	14.58	7.29	8.78	8.63	10.42	0	5.95	30.51	1.93	0.3	2.53
S4	RAI	6	1286	20.41	25.74	18.66	7.08	6.3	10.58	10.73	0	4.28	27.68	3.34	0.23	1.17
S5	RAI	6	981	20.02	20.18	15.39	4.79	6.42	9.99	11.72	0	7.65	26.61	2.34	0.51	1.33
S6	RAI	6	1650	16.84	20.91	15.09	5.82	9.58	9.27	11.82	0	6.61	31.58	1.88	0.73	3.82
S7	RAI	6	646	19	22.14	16.41	5.73	7.89	8.67	11.61	0	9.6	4.49	2.17	1.86	5.11
S8	RAI	6	1480	20	24.39	15.07	9.32	4.86	11.89	9.53	0	6.55	27.3	3.58	0.34	1.08
S9	RAI	6	1735	21.42	20.52	12.91	7.61	9.16	9.45	13.37	0	6.8	29.39	2.19	0.23	1.56
S11	RAI	6	1056	13.54	20.64	14.77	5.87	10.7	11.17	9.56	0	7.77	26.42	2.75	1.7	2.08
S12	RAI	6	1154	19.23	17.33	12.13	5.2	6.85	14.56	11.01	0	4.59	29.38	1.82	0.61	0.61
S13	RAI	6	946	14.78	23.36	14.69	8.67	8.46	9.51	10.57	0	9.3	26.96	2.75	0.63	1.16
S14	RAI	6	438	15.1	19.86	12.33	7.53	4.34	12.1	8.45	0	6.85	29.68	2.97	0.23	1.6
S15	RAI	6	691	15.36	19.83	15.77	4.05	10.71	9.84	10.13	0	11	28.08	2.32	1.74	3.18
S16	RAI	6	519	8.37	20.62	13.49	7.13	8.09	10.6	9.25	0	6.94	7.32	0	1.93	11.75

Participant	Interview	Grade	Word Count	Words Per Sentence	Pronouns	Personal Pronouns	Imper-sonal Pronouns	Adverbs	Prepo-sitions	Conjunc-tions	Swear	Affect	Cogni-tion	Percep-tion	Non-fluency	Filler
S3	RLI	5	1022	12.31	22.7	16.63	6.07	9	11.25	10.27	0	6.56	26.32	1.57	2.45	0.78
S4	RLI	5	451	11.56	27.72	19.07	8.65	7.1	13.3	8.43	0	8.43	24.17	1.77	0.89	0.89
S5	RLI	5	824	11.94	23.42	14.32	9.1	8.01	8.86	9.22	0	8.98	29.61	3.03	0.85	0.73
S6	RLI	5	1046	20.51	23.8	15.3	8.51	9.75	9.56	11.47	0	9.75	27.72	0.67	2.58	1.24
S7	RLI	5	522	12.43	20.88	11.69	9.2	9.77	10.15	7.66	0	4.41	21.26	2.3	2.3	1.72

S8	RLI	5	948	24.95	22.57	12.87	9.7	9.49	9.81	14.03	0	6.33	25	2.53	1.37	1.37
S9	RLI	5	1381	39.46	22.66	11.73	10.93	12.31	10.57	9.41	0	7.46	31.28	1.59	1.09	1.01
S10	RLI	5	532	12.37	29.14	21.43	7.71	8.83	10.53	9.4	0	4.7	26.5	0.38	0.94	1.32
S11	RLI	5	1191	17.78	25.78	17.04	8.73	7.56	8.82	10.66	0	6.55	27.71	2.6	3.27	1.26
S12	RLI	5	678	14.43	16.22	7.67	8.55	7.67	12.68	8.55	0	3.54	26.25	1.77	1.92	0.74
S13	RLI	5	33	3	12.12	12.12	0	6.06	6.06	0	0	3.03	15.15	0	6.06	0
S14	RLI	5	556	16.85	22.3	9.71	12.59	9.35	11.87	9.17	0	5.58	25.9	2.34	1.62	1.62
S16	RLI	5	747	15.89	21.69	12.18	9.5	5.49	13.12	12.05	0	9.91	32.4	1.47	1.34	0.13

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