12-2011

Parenting Strategies as Predictors of Cognitive Development Among Children

Nydia E. Martinez
University of Texas-Pan American

PARENTING STRATEGIES AS PREDICTORS OF COGNITIVE DEVELOPMENT AMONG CHILDREN

A Thesis

by

NYDIA E. MARTINEZ

Submitted to the Graduate School of the
University of Texas- Pan American
In partial fulfillment of the requirements for the degree of

MASTER OF ARTS

December 2011

Major Subject: Experimental Psychology

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COMMITTEE MEMBERS

Dr. Amy Weimer
Chair of Committee

Dr. Philip Gasquoine
Committee Member

Dr. Fredrick Ernst
Committee Member

December 2011

ABSTRACT

Martinez, Nydia E., Parenting Strategies as Predictors of Cognitive Development Among Children. Master of Arts (MA), December 2011, 44 pp., 6 Tables, 3 Figures, 40 references, 21 titles, 3 appendices.

The present study investigated relationships among parenting strategies, socioeconomic status, and theory of mind development in 88 (43 girls and 45 boys) predominantly Hispanic 3 – to 7-year old children. Vocabulary and ToM reasoning (via one true and one false belief task) levels were assessed. Parents completed demographic surveys and a disciplinary questionnaire, which presented the parents with hypothetical corrective behavioral situations. Contrary to expectations there were no significant relations between ToM, parenting strategies, and socioeconomic status in the overall sample. However, examining children tested in English and children tested in Spanish separately yielded some significant results. In the Spanish-speaking sample, theory of mind and parenting strategies were significantly related (r = .40) and children's picture vocabulary scores significantly related to age (r = .54). Among English speakers, children's picture vocabulary scores significantly related to theory of mind (r = .30). Implications will be discussed.

DEDICATION

The completion of my Master studies would not have been possible without the understanding, encouragement and love of my parents, my father, Jose Alfredo Martinez, and my mother, Myrna Nydia Martinez, who have wholeheartedly believed in me throughout my studies. I could not have done it without you two! Your motivation, unconditional love and support were the key to my success.

ACKNOWLEDGEMENTS

I will forever be grateful to Dr. Amy Weimer, chair of my thesis committee, for all her advice and guidance. From research design, data analyzing, and her continuous patience and conciseness in reviewing draft after draft.

I would also like to thank Dr. Phillip Gasquoine, committee member, for his intellectual input and funding support for this study.

In addition, a very special thanks to my committee member Dr. Fredrick Ernst, for all of his support and encouragement throughout my graduate studies, your enthusiasm and passion lead me to a field in Psychology I'm so honored to be a part of, Experimental Psychology emphasis in BCBA, I will be eternally grateful.

I would also like to thank, Allen Ramirez, research assistant, for always being astute in helping collect data from McAllen to Rio Grande City. In addition, a huge thanks to all the research assistants who took time to help input and recheck all of the data and code disciplinary situations; Maya Quintanilla, Israel Arevalo, Gladys Vazquez, Lana Rodriguez, Sarah Stegall, and Selena Sanchez.

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CHAPTER I

INTRODUCTION

Children begin to acquire a theory of mind between the ages 3 and 5 years (Slaughter, Dennis & Pritchard, 2002). Theory of mind (ToM) is the ability to predict and explain the behavior and feelings of others based on reference to mental states such as beliefs, desire and perceptions (Astington, 1993; Wellman, 1990). Several factors have been linked to the development of ToM, which include demographic characteristics such as number of siblings, parenting styles, parent's education, and socioeconomic status (Cutting & Dunn, 1999; Jenkins & Astington, 1996; Ruffman, Perner, & Parkin, 1999).

The primary purpose of this study is to examine how parenting strategies affect ToM development. The knowledge gained from this study could contribute to parents' understanding about the importance of disciplinary strategies in children's social cognitive development. This knowledge might encourage parents to acquire a new form of discipline with their children such as discussing situations and the feelings of others, as opposed to physical punishment or sending the child to a room without discussing the situation. In addition, this study will provide insight on how socioeconomic factors affect ToM development. Most research on ToM development has focused on children from middle to upper-middle-class groups (Lilliard, 1998). Children from the Rio Grande Valley come primarily from families with incomes that range from low to upper middle-class (U.S. Census, 2010). Although, children from low-income families are at greater

risk of developing difficulties in emotional and social development (Bolger, Patterson, Thompson & Kupersmidt, 1995), there is less known about how income affects social cognitive development, this study aims to provide such insight.

Theory of Mind Development

An important aspect of early cognitive development in children is ToM. Theory of Mind involves the ability attribute mental states (such as beliefs, desires, and intentions) to oneself and to other people, as a way of making sense of and predicting behavior (Premack & Woodruff, 1978). False belief (FB) tasks are the most commonly used tasks to measure children's ToM. Children's development of such a 'theory of mind' has been studied over the past 30 years (Flavell, 1999). Early research has revealed an understanding of simple desire acquired at about 2 years of age (Wellman & Woolley, 1990) and belief at 3 to 4 years of age (Wellman, Cross, & Watson, 2001; Wimmer & Perner, 1983).

Recent work has begun to address various factors that affect individual differences in ToM and how this type of knowledge is developed. Relations have been found between ToM and language (Astington & Jenkins, 1991), parental variables, such as parent-child conversations (Brown, Donelan-McCall & Dunn, 1996; Dunn, Brown, & Beardsall, 1991a), parenting style (Vinden, 2001), parental approaches to discipline (Hughes, Deater-Deckard, & Cutting, 1999; Ruffman, Perner & Parkin, 1999), and also demographic variables, such as parental education, socioeconomic status, and number of siblings (Cutting & Dunn, 1999; Perner, Ruffman, & Leekam, 1994).

Family Talk and Theory of Mind

Studies of emotion understanding have suggested that talk between children and family members might facilitate social cognitive development, particularly talk involving emotions. For example, there are findings that parental interactions with siblings affect children's emotion understanding differently (Dunn, Brown, Slomkowski, & Youngblade, 1991b). This study indicates that a mother's efforts to control the behavior of the child's older sibling correlate with the child's belief understanding.

Parenting and Theory of Mind

Clark and Symons (2000) found that children who have emotionally warm, sensitive and responsive parents are more likely to develop positive beliefs about themselves and their relationships, compared to children with cold and unresponsive parents who may develop more negative views of themselves that enable feelings of low self-worth. Their results suggest that positive parenting leads to positive cognitive outcomes in children. Sensitive parents attend to and appropriately reflect on their children's mental states, in turn; providing opportunities for children to learn mental perspectives.

Vinden (2001) found that parents who use controlling techniques do not provide opportunities for children to learn about others' perspectives. These results suggest that negative parenting leads to negative ToM outcomes in children. There is also evidence that power assertion discipline (including physical punishment, yelling and direct commands) leads to adverse consequences for children, including poor ToM performance (Hess & McDevitt, 1984). In addition, Vinden (1997) found that authoritarian parenting style (characterized by strict punishment and poor communication) was associated with reduced levels of success on ToM

tasks that included a false belief test. Whereas, discussion and communication, that teach children about other's mental states, are essential between mother and child for success on ToM tasks.

Parenting also has been found to directly relate to ToM development and emotion understanding, a related social cognitive ability (Guajardo, Snyder, & Petersen, 2009). They assessed the relationship among parental stress, parental behaviors, and children's outcomes. More specifically, they examined whether parental stress relates to parental responsivity and discipline styles, and whether these in turn predict children's ToM and emotion understanding. They also examined whether ToM and emotion understanding then related to children's internalizing and externalizing behaviors. The sample included 83 parents, 65 mothers and 18 fathers, along with their three to five-year-old children. Parents completed the Parenting Scale (Arnold, O'Leary, Wolff, & Acker, 1993), a 30-item scale that assesses parenting responses to child misbehavior. For each item, parents answered on a Likert scale as to which of the following two responses was more like them. For example, *when my child misbehaves…* they chose between 'I do something right away' or 'I do something about it later'. These two factors encompass overreactivity (When I am stressed or upset I am picky on my child's back) and laxness (I threaten to do things I know I will not actually do). They also completed the Child Behavior Checklist (Achenbach, 1991) that yields two broad measures of externalizing behavior and internalizing behavior. Parents also completed the Parenting Stress Index (Abidin, 1995) to assess the effect of stress on parent-child interactions, and also a demographic survey. Children were tested in ToM and emotion understanding. Receptive language was also assessed, in

addition each parent and child participated in three consecutive 10 minutes behavior analogs: free-play, parent-busy, and cleanup tasks.

Findings indicated that lax parenting (i.e., inconsistent, uninvolved) predicted poorer performance on ToM tasks; however neither overreactivity nor lax parenting accounted for unique variance in children's emotion understanding. I was stated, "Lax/ inconsistent/disengaged parenting may affect these changes by significantly altering the trajectory of children's cognitive development, via delayed development" (p. 55). Lax parenting and stress predicted ToM performance, whereas parental imitation during play was negatively predictive of children's emotion understanding. Neither externalizing nor internalizing behaviors were predictive of ToM development, yet externalizing behavior was related to emotion understanding. Only lax parenting predicted poorer performance on ToM tasks.

Ruffman, Perner and Parkin (1999) investigated how different kinds of parenting styles might affect children's understanding of false belief. Their sample consisted of 64 children from lower and middle class nurseries. The children's receptive vocabulary was tested by using the British Picture Vocabulary Scale. Children were given one out of two false belief stories. Parent responses in each situation were coded into four categories. How Feel (HF) (mothers asked the child, 'how would you feel if he did that to you?'), General Discussion (GD) (in a situation where the child purposely damaged something that was not theirs, for example a friend's toy, one mother said ' I explained that it was wrong and why they shouldn't take it'), and Reprimand (REP) (mother often said they would send the child to their room, get mad at the child, make the child give something back or apologize), a small proportion of responses were ambiguous as to

whether they were REP or GD and so they were termed ambiguous (AMB) (Mothers said they would discuss the situation with the child and explain it was wrong).

Mothers who responded to a child's transgressions by asking the child to reflect on the victim's feelings (HF) had children with more advanced belief understanding. This result is consistent with findings from FitzGerald and White (1995) who found that parents' observed use of 'victim-centered discipline', which encouraged children to imagine what another person thought or felt about their actions, was positively associated with performance on perspective-taking tasks. Ruffman and colleagues explained that parents have a significant tendency to use HF responses mainly with younger children.

Mothers give HF responses to younger children who have a more impoverished understanding of mental states such as belief, and refrain from giving them to older children who clearly do understand belief. Other researchers have also explained that mothers might be particularly important in discussing mental states with younger children because mothers might feel such responses are within the child's 'zone of proximal development (Vygotsky, 1978).

Parenting, Socioeconomic Status, and Theory of Mind

There are many confounding variables that complicate investigations of parenting and ToM. There is evidence that parental strategies might differentially be affected by stress (Guajardo et al., 2009). Parenting stress is one of many factors related to parent's parental approaches and effectiveness. Parents that experience high levels of stress, particularly from economic difficulties, typically are less responsive and affectionate with their children and are more likely to use power-assertive techniques, as compared with parents without such stress (McLoyd, 1990). Parents with low socioeconomic status might have to work two or three

different jobs in order to support their family and in turn have high levels of stress resulting in poor parenting practices. With respect to family income and family structure, having higher income and two parents present in the home may give parents a chance to sit and talk to their children about feelings and other matters such as perspective taking or emotion understanding. In contrast, single parent households do not share the same resources than a two parent household; having one parent may lead to fewer discussions about feelings and emotion understanding.

A number of recent studies have examined associations among demographic variables, parenting strategies, and ToM tasks. In Pears and Moses (2003) families were young parents with low education and SES. The sample included 142 children ranging from 36 to 62 months. Parenting questionnaires included the Parent Daily Report (Chamberlain & Reid, 1987), which asked whether a series of negative and positive child behaviors occurred in the past 24 hours and how the parent responded to these. Parent responses included: power assertiveness responses (physically and verbally negative responses such as spanking and yelling), general instructional responses (talking to the child about how dangerous the behavior was), and feeling responses (responses involving explanations of how the behaviors affected others' feelings), and responses that involved giving consequences; consequence responses (time-out, withdrawing privileges, removing a toy).

Theory of mind (ToM) tasks included a visual perspective taking, desire reasoning, belief reasoning, emotion recognition, and affective perspective taking. Maternal education appeared to be the strongest predictor of ToM (mother's who are more highly educated may spend more time with their children and therefore spend more time explaining causes of social phenomena to children than less educated mothers), correlating moderately with perception, desire, and

emotion understanding. Income was significantly correlated with perception and emotion understanding. Power assertive discipline techniques were negatively correlated with belief understanding. The use of consequences (such as time out or removal of privileges) was negatively associated with emotion understanding in both correlational and regression analyses. Although the use of consequences may well be effective in modifying children's behavior, it does little by itself to teach children about other's feelings. Instructional responses were positively associated with both perception and desire understanding in the correlational analyses.

Hughes, Deater-Deckard and Cutting (1999) focused on exploring relations between young children's understanding of mind and parental emotional expression and disciplinary style, along with SES and gender differences. The sample included 125 same-sex twin-pairs. Batteries of ToM tasks were administered to each child (ten ToM tasks: eight false belief stories and two deception stories) in addition two verbal subtests (Vocabulary and comprehension) from the Stanford Binet Intelligence Scales. Child was filmed individually for 20 minutes, interacting with the primary caregiver. The caregiver was also interviewed about disciplinary strategies. This interview was audio taped. Socioeconomic status was also gathered from parents. The parent child relationship was measured via two independent observer ratings, positive aspects of the parent-child relationship (These were divided into four categories: positive effect, closeness, parental knowledge of the children; and enjoyment of the parenting role) and general parental negativity (how much the parent raised his/her voice at the children). A 7-point scale was used to code the parent-child control of child, interactions for positive control (praise, rewards, explanation) and negative control (criticism or physical). Discipline was positively associated with understanding of mind, but specific negative control was negatively associated. Strong

correlations were found between family SES, parenting measures, and child verbal IQ and ToM score. Regression analyses showed that parental behaviors were significant predictors of children's ToM performance, even when gender, verbal IQ and family SES were taken into account.

Weimer and Guajardo (2005) investigated relationships among false belief, emotion understanding, and social skills with children from Head Start and Non-Head Start Centers. The Head Start program is a national program administered by the states, established in 1965 to promote school readiness for young children from low-income families by enhancing the social and cognitive development of at risk children through the provision of educational, health, nutritional, social and other services to enrolled children and families (NHSA, 2010). It was found that Head Start children who had parents with less education and income performed less well on ToM tasks but equally well on emotion tasks in comparison to children from middle-class serving preschool.

Purpose

Collectively past research has begun to address various factors that affect individual differences in ToM, including socioeconomic status, parenting styles (Hughes et al., 1999), disciplinary strategies, and siblings (Ruffman et al., 1999). Family talk and discussions with younger children about their feelings and others is the greatest predictor of ToM development.

The goal of this study was to examine how parental strategies and socioeconomic factors affect ToM development in children. The two variables explored included parenting strategies and socioeconomic status. It was expected that:

1) Positive parenting strategies would positively relate to children's ToM understanding, regardless of the family's socioeconomic status, and,

2) Children from low socioeconomic status households would perform less well on ToM tasks than children from higher socioeconomic statuses regardless of parenting practices.

CHAPTER

METHODOLOGY

Participants

There were 99 children originally included in this study; however 11 participants were excluded: six were missing parenting questionnaire data; two lacked sufficient language proficiency, and three children failed ToM control questions. Participants in this study consisted of 88 children 3 to 7 years of age (*M* = 5.24, *SD* = 13.65). There were 43 girls (*M* age = 5.16, *SD* =14.18) and 45 boys (*M* age = 5.32, *SD* =13.22). Participants were recruited from three childcare centers (22), two public schools (59), two Head Start Centers (5), and by word of mouth from the community (2). Children were from lower and middle class families in a predominantly Hispanic area of the Rio Grande Valley, Texas. Children's parents were predominately Hispanic (Hispanic- 133, Caucasian- 14, African American- 2, Filipino- 2). This study included data from 85 mothers (*M* age = 30 years, *SD* = 5.67) and 75 fathers (*M* age = 33 years, *SD* = 6.98). Demographic data was collected on the children's parents' education level and total income of the household; there was some data missing from parents. For Parental education, 28% of mothers and 21% of fathers held a bachelor's and/or a higher degree. The mean total income of the household was slightly above average (*M* = 40,000-50,000) for the area in which they were sampled, which averages about $30,000 according to the U.S. Census in 2010.

Descriptive statistics are reported in Table 1 for the following variables: Mean and standard deviations for participant's age by gender, younger and older siblings, parental

education, total household income, ToM reasoning scores, picture vocabulary scores, and parental strategies.

Table 1

Means and Standard Deviations of Children's Age by Gender, Younger and Older Siblings, Parental Education and Total Household Income, ToM, Picture Vocabulary Scores, and Parenting Strategies for Total Sample

Measure	*N*	*Min*	*Max*	*Mean*	*SD*
Female Age (Months)	43	38	91	61.88	14.18
Male Age (Months)	45	38	89	63.87	13.22
No. of younger siblings	88	0	5	.67	.91
No. of older siblings	88	0	4	1.02	1.06
Mother's Education	81	1	7	3.05	1.76
Father's Education	74	1	7	3.08	1.68
Total Income	83	1	11	4.17	3.29
ToM Reasoning	88	1	3	1.47	.73
Vocabulary	88	47	131	94.80	15.26
Vocabulary (English)	56	47	131	97.68	16.73
Vocabulary (Spanish)	32	59	112	90.69	11.77
Parenting Strategies	88	1	3	2.22	.65

Figure 1

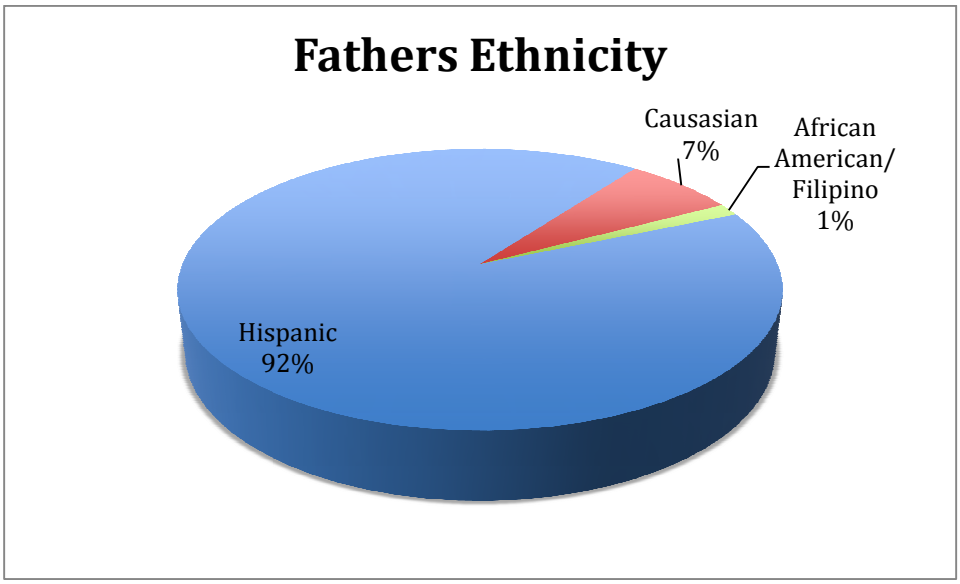
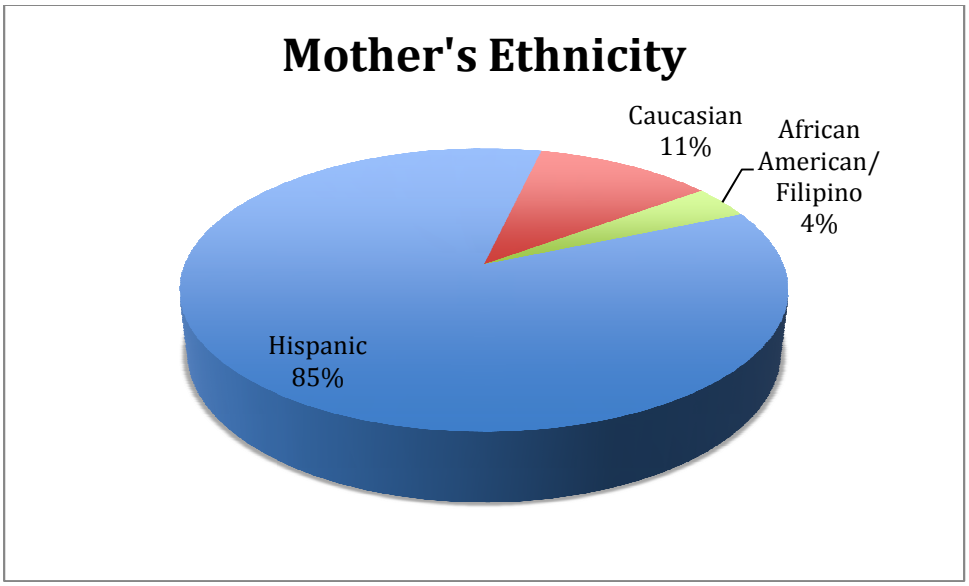


Figure 2



Procedure

The research team visited Day Care Centers, Head Start Centers, and public schools in the Rio Grande Valley to acquire written permission from the director; the letter granted permission for the research team to perform the study at the center. After permission was granted from directors, a packet was given to the head teacher to distribute to parents; this packet included informed consent for the child, demographic survey, and a parenting strategies questionnaire of disciplinary situations. All written forms were translated to Spanish. The translation process was taken from Bullinger et al., (1998), which involved forward translations of the original U.S.-English questionnaire into the language of the target country by at least two translators who were native speakers of the language into which the form was to be translated. In this case it was translated to Spanish.

Teachers collected these packets from parents and returned them to the research team. The research team also visited children from private families at their home; parents were given the same packet to complete. Inclusion of children in this study depended on the receipt of informed consent forms from parents. All children were also required to be minimally proficient in ether English or Spanish, as measured by the Woodcock-Munoz Language Survey-Revised (WMLS-R; Woodcock, Munoz-Sandoval, Ruef & Alvarado, 2005). All children were administered the picture vocabulary subtest prior to receiving any ToM tasks, to ensure that each understood either English or Spanish well enough to perform the tasks (i.e., they needed to understand at least 6 words).

In each session the experimenter and child spoke only English or Spanish depending on the child's primary language. The session lasted approximately 20 minutes. Children were taken

to a quiet room in the center. The measures were administered in the following order: Language assessment (WMLS-R), ToM task (false belief or true belief), The Temptation Resistance Paradigm (not analyzed in the present study), and another ToM task (false belief or true belief). The Temptation Resistance Paradigm was purposely set in between the theory of mind tasks to ensure reliability and so the child would be less likely to remember the previous task, since they are so similar. Children received an age-appropriate book for their participation at the end of the session.

Measures

Demographics

A demographic questionnaire was administered to parents along with the consent forms. Parents were asked to provide information about the following: annual income of the household, parental education level and current employment status, number of older and younger siblings of the child, number of adults living in the household, and child's dominant language (see Appendix A). Parents were asked to indicate the highest education level completed for both parents from the following seven categories: grade school, high school/GED, vocational/technical school, associate's degree, bachelor's degree, masters or professional degree, and doctorate degree. Scores ranged from 1-7. Parents were also asked to indicate their yearly total household income, ranging from less than $10,000 to over $100,000. Scores ranged from 1-11.

Language Assessment

Woodcock-Munoz Language Survey-Revised (Woodcock et al., 2005). The children were administered the vocabulary subtest of the Woodcock-Munoz Language Survey-

Revised. Scoring was completed according to standardized procedures. This task involved asking the child to identify pictured objects. The assessment had 59 pictured items that increased with difficulty. Each item was scored in a binary manner, 1= pass, 0= fail, for a potential raw score of 6 to 59. The raw scores were converted to scale scores with a mean of 100 and a standard deviation of 15. To determine which language to test children (English or Spanish), the children's parent(s) were asked about the child's level of language comprehension. Parents provided responses for two different language questions. The first question was: "What language does your child currently understand better?" and "What language can your child currently speak better? Before beginning the assessment, children also were asked if they spoke English or Spanish. Testing took place in the language that the parent indicated, and if bilingual, in the child's preferred language.

Theory of Mind

Theory of mind reasoning was assessed using two tasks which have been previously established as valid in past research (Fabricius, Boyer, Weimer, & Carroll, 2010). In the first task, children's understanding of True Beliefs (TB) was measured. In the TB task, the child was shown a box of cookies and revealed that some other object was inside (i.e., a marker). The actual cookies belonging to the box replaced the marker; this was done in plain sight of the child approximately one foot from the researcher. The child was then introduced to a doll and asked if the doll would know the contents of the box without looking inside the box. A justification question followed which asked, "Why would he/she think that?"(See Appendix C).

In the second task, children's understanding of False Beliefs (FB) was measured; the task included showing a child a box of crayons then asking the child what they thought the box

contained. After the child's response, the experimenter revealed the contents of the box; which was some other object (i.e., a penny). The other object was returned to the box, and the child was introduced to a doll, and asked if the doll would know the contents of the box without looking inside the box. A justification question followed which asked the child "Why would he/she think that?" (See Appendix B)

ToM tasks included control questions; they served as a control for children's comprehension of the story, only the pass/fail rates were recorded. The tasks also included inference and belief questions, followed by justification questions, which helped classify the children into three categories of ToM reasoning levels: Reality Reasoning (RR), Belief Reasoning (BR), and Perceptual Access Reasoning (PAR). As per Fabricius and colleagues (2010), children using the Belief Reasoning (BR) approach should reason that the other person will think that the container holds crayons because it is a crayon box. Children using the Reality Reasoning (RR) should infer that the other person will think that the container holds a penny as opposed to crayons because there is actually a penny inside. Perceptual Access Reasoning (PAR) has two defining rules: (1) seeing, or perceptual access, leads to knowing, while not seeing leads to not knowing, and (2) knowing results in acting correctly, and not knowing results in acting incorrectly. Children who reasoned with the perceptual access approach should infer that another person will not see the contents and therefore will not know that crayons are inside, and as a result will be mistaken and say the container holds a penny. If the child does not give a response to the justification question or if the answer is completely out of context, it was also coded under PAR.

As per Fabricius and Colleagues (2010) children who use reality reasoning (RR) should pass the true belief task and fail the false belief task. Children who use perceptual access reasoning (PAR) should fail the true belief task and pass the false belief task. Those who use belief reasoning (BR) should pass both. Event though, this method does not require classifying justifications, it does presuppose consistency of strategy use across true and false belief tasks. Both, children's passing/failing scores and justifications for responses were used to code ToM reasoning level in the present study.

Parenting Questionnaire

Disciplinary Situations Questionnaire (Ruffman et al., 1999). Parents completed a set of questions of situations in which presented the parents with hypothetical corrective behavioral situations. One of the situations stated, "The child purposely damaged something that wasn't theirs, for example a friend's toy" followed by, "What did you (would you) say or do to the child?" Parent responses in each situation were coded into three categories: 1) How Feel (HF), in which parents asked the child, "How would you feel if he did that to you?" In this response, parents ask the child to reflect on the victim's feelings and how he/she would feel if the victim did the same to him/ her, or also, asking the child to put himself in the other child's shoes; 2) General Discussion (GD), in which the parent(s) had a discussion with the child about the situation, which they explained that it was wrong and why they shouldn't take it, without mentioning the other person's feelings at all; 3) Reprimand (REP), in which parents punished the child in some way by sending the child to their room, getting mad at the child, making the child give something back or apologize. Out of the three codes How Feel (HF) is classified as the "best" discipline strategy following Discussion (GD), then Reprimand (REP). This ranking order

was not analyzed as part of this study but gathered from previous research. Two coders scored all protocols; coders agreed on 97% of situations of which the disagreements centered on whether a response merited a REP or a GD for four responses and GD or HF for two of the responses, for all cases disagreement was resolved by discussion. Reliability analyses were conducted to examine the consistency across all five disciplinary questions, results demonstrated low internal consistency Cronbach's $\alpha = .69$. Additionally, correlational analyses indicated that there were no significant correlations among the different transgressions.

CHAPTER III

RESULTS

Preliminary Analyses

Descriptive statistics are reported in Table 2 for the following variables: Children's age by gender, ToM performance, picture vocabulary (English and Spanish) scores, and parental responses to disciplinary situations. Correlational analyses were computed for demographic variables. Mother's and father's education levels were positively correlated, $r = .60$, $p <. 01$, thus a new variable was created to average the means of mother's and father's educational level, it was named parental education. This was used in subsequent analysis. A MANOVA was conducted to examine whether ToM, total household income, and parental strategy use differed by gender, or language of testing. This analysis revealed that there were no significant differences between boys and girls on these four variables, however, the overall F value for group differences by language of testing was significant, $F\ (4, 76) = 3.37$, $p < .05$. Children tested in Spanish were significantly lower in picture vocabulary $F\ (1, 79) = 3.97$, $p \leq .05$ and total household income, $F\ (1, 79) = 10.08$, $p < .05$, compared to children tested in English. The groups did not differ in ToM reasoning or parenting. Results are summarized in Table 2.

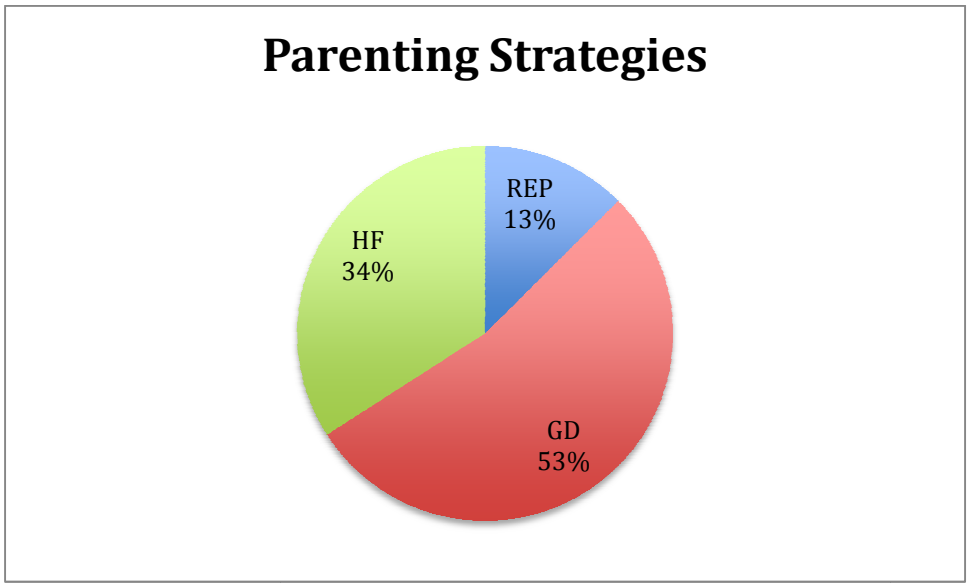
Table 2

Means and Standard Deviations for ToM, Parenting, Income, and Vocabulary across Language Child Tested In English and Spanish

	Language Child Tested In	*N*	*Mean*	*SD*	*Std. Error Mean*
ToM Reasoning	English	56	1.51	.78	.10
	Spanish	32	1.37	.60	.10
Parenting	English	56	2.16	.62	.08
	Spanish	32	2.31	.69	.12
Picture Vocabulary	English	56	97.14**	16.58	2.21
	Spanish	32	90.68	11.77	2.08
Total Household Income	English	53	5.00**	3.39	.46
	Spanish	30	2.70	2.53	.46

**Significantly lower than children tested in Spanish at $p \leq .05$

Figure 3



Language

Descriptive statistics were conducted on the language questions on the demographic forms. To "What language does your child currently speak better?" parents reported that 52% spoke English, 31% spoke Spanish and 5% spoke both languages. To the second question, "What language can your child currently understands better?" parents reported that 50% understood English better, 29% understood Spanish better, 9% understood both English and Spanish better. Of the total sample, 63% of the children were tested in English and 36% of the children were tested in Spanish.

Parenting

As shown on Figure 3, 87% of parents practiced positive parenting strategies with their children, whereas reflecting on the victim's feelings with the child (HF) or discussing the situation with them (GD). Out of 440 situations, which the parents responded to, they claimed

that 219 had actually arisen and 215 had not arisen, there were 6 situations missing responses. A unique finding in this study was the importance and significance of respect parents included in their disciplinary discussion with their child; 31 out of 88 parents stated they talked about respect in at least one out of the five disciplinary questions.

Critical Analyses

Hypothesis 1

Correlational analyses were conducted to examine relations among children's age, picture vocabulary scores, ToM reasoning, parental strategies, and household income level. This addressed Hypothesis 1: whether authoritative parenting strategies would positively relate with ToM development, such that parents who used more verbal strategies (HF or GD) would have children with higher ToM scores compared to children of parents that practice a more authoritarian parenting strategy and rarely discuss any situation with the child (REP) above and beyond total household income differences. Parenting strategies were not significantly correlated with ToM. Furthermore, no single disciplinary item (e.g., the child purposely damaged something that wasn't theirs) correlated with ToM. After controlling for total household income, ToM and positive parenting strategies were not significantly related, $r = .07$, *ns*, either; however, ToM and picture vocabulary were significantly related $r = .30$, $p < .01$ as well as ToM and age, $r = .41$, $p <. 01$. These results are shown in Table 3 below.

Table 3

Correlation between Children's Age, Vocabulary Scores, ToM, and Parenting Strategies by Total Household Income

Variables		Age in Months	Picture Vocabulary	ToM Reasoning	Parenting Strategies
Total Household Income					
	Age in Months	1.00	.22	.41**	.12
	Picture Vocabulary		1.00	.30**	.04
	ToM Reasoning			1.00	.07
	Parenting Strategies				1.00

**. Correlation is significant at the 0.01 level (2 tailed)

Given that there were some differences in critical variables between children tested in English and Spanish, analyses were conducted to examine relations among variables in each language group. ToM and age were positively significantly related in both groups, (English, r = .35, $p < .01$, Spanish r = .47, $p < .01$); however, ToM and vocabulary were related only in English, r = .30, $p < .01$). Also, vocabulary with age (r = .54, $p < .01$) and parenting with ToM (r = .40, $p < .01$) were only related in Spanish. These correlation coefficients are shown Table 4 below.

Table 4

Correlations among Children's Age, Vocabulary, ToM, Parenting, and Total Household Income Separated by Language Tested (Ns= 56 in English and 32 in Spanish)

Variables	Age in Months	Picture Vocabulary	ToM Reasoning	Parenting Strategies	Total Income
Age in Months					
English		.10	.35**	-.01	-.00
Spanish		.54**	.47**	.22	-.15
Picture Vocabulary					
English			.30*	.04	.15
Spanish			.24	.23	-.23
ToM Reasoning					
English				-.13	.14
Spanish				.40*	.16
Parenting Strategies					
English					-.09
Spanish					.24
Total Income					
English					
Spanish					

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Even though there was no significant correlation between ToM and parenting strategies in the overall sample, patterns within the data suggest that children who had more advanced ToM understanding had parents who used more verbal parenting strategies. Table 5 shows different patterns of parenting strategies and ToM reasoning scores. Ten out of twelve children categorized as Belief reasoners had parents who used HF and GD strategies, in comparison to the two who had parents who used REP as a parenting strategy. This finding shows that 83% of children who exceeded the ToM tasks had parent(s) that used "authoritative" strategies.

Table 5

Theory of Mind Reasoning and Parenting Strategies

		ToM Reasoning			
		PAR	Reality	Belief	Total
Parenting	REP	7	2	2	11
	GD	34	7	6	47
	HF	18	8	4	30
Total		59	17	12	88

Hypothesis 2

Even though income level was not significantly related to ToM reasoning, further analyses were conducted to examine Hypothesis 2: whether children from low socioeconomic status households would perform less well on ToM tasks than children from higher socioeconomic statuses above and beyond parenting strategies. Specifically, an Independent *t*-test was conducted to examine the differences between children from low income households

and middle income households on ToM reasoning, parenting strategies, total household income, and picture vocabulary. A comparison of the two income groups revealed no significant differences on ToM reasoning, age, vocabulary and parental strategies. However, there was a significant difference in total income household across the groups, t (45.07) = -12.22, $p < .05$. (Given that the assumption of equal variances across the groups was not assumed appropriate t statistics were reported.) Means are shown in Table 6 below.

Table 6

Means and Standard Deviations of ToM, Parenting, Total Household Income, Vocabulary Across Lower and Middle Income Households

		N	*Mean*	*SD*	*Std. Error Mean*
ToM Reasoning	Low	40	1.43	.64	.10
	Middle	43	1.56	.83	.13
Parenting Strategies	Low	40	2.25	.63	.10
	Middle	43	2.16	.65	.10
Total Income	Low	40	1.48**	.51	.08
	Middle	43	6.67	2.74	.42
Picture Vocabulary	Low	40	92.25	13.18	2.08
	Middle	43	97.51	17.02	2.60

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

CHAPTER IV

DISCUSSION

Previous findings on parental discipline strategies and ToM development are somewhat unclear. Teaching children about the effects of their behaviors on other's feelings has been found to positively relate to ToM, but few studies have examined this issue directly. This study investigated ToM development in young children in the Rio Grande Valley with emphasis on parenting strategies and socioeconomic status by comparing children from low socioeconomic status households to children from middle socioeconomic status households. These two variables have important implications for the development of ToM in children. Specifically, it was expected that children from authoritative parents would obtain higher scores on ToM tasks than children from authoritarian parents, regardless of household income. Secondly, it was expected that children from lower income households would obtain low scores on ToM tasks compared to children from higher income households regardless of parenting practices.

Theory of Mind, Age, and Language

Research has revealed children's understanding of simple desire is acquired at about 2 years of age (Wellman & Woolley, 1990) and belief at 3 to 4 years of age (Wellman, Cross, & Watson, 2001; Wimmer & Perner, 1983). As children get older their ToM development broadens. As expected, ToM and age were positively related in both language groups; children tested in English or Spanish. As with age, language understanding also has been found to relate

to ToM development. According to Cutting and Dunn (1999) language ability is important in ToM performance. Past research has demonstrated that children with a high vocabulary understanding have greater ToM understanding. This study confirms findings from past research, finding that even after controlling for household income, age and language ability positively relate with ToM. In addition, vocabulary and age were positively related only in Spanish speakers.

Results showed a significant difference in picture vocabulary scores between children's language: the English speaker's mean score was 97.14; whereas the Spanish speaker's mean score was 90.68. This may have been related to economic or other factors that also covaried across the groups.

Theory of Mind and Parenting

In contrast to what was hypothesized, overall no significant differences were found between ToM reasoning and positive parenting strategies. However, examining children tested in English and children tested in Spanish separately yielded some significant results. In the Spanish-speaking sample, ToM and parenting strategies was significantly related. This finding also may be due to variables that differed across the groups. In particular it may be that children tested in Spanish came from families who were more enculturated in comparison to children tested in English, who were more highly acculturated. Future research on ToM and parenting should include measures of cultural values. For example, as per Domenech-Rodriguez, Donovick, and Crowley (2009), some researchers have concluded that an authoritative parenting style is a predictor of overall positive child outcomes in Latino families, whereas other researchers have suggested that authoritative parenting style predicts positive child outcomes *in*

White children only, the association is not evident in Latino families (Lindahl & Malik, 1999; Park & Bauer, 2002). This gives insight to this study's results that children who had more advanced ToM understanding had parents who used more verbal parenting strategies, but overall there was no significant correlation between ToM and parenting strategies. If further parenting and cultural behaviors could be explored, perhaps relations between ToM and disciplinary strategies would be clearer. Of note, research has stated that Spanish-speaking parents lean towards a more authoritarian parenting strategies (Darling & Steinberg, 1993; Hammer & Turner, 1990), but those results were not confirmed in this study: 87% of parents' practiced authoritative parenting!

Previously mentioned findings consisted of children with a high passing rate on ToM tasks, whereas this sample included children with very low passing rates. This may be due to the lower income and predominant ethnicity of this sample. Previous studies included high income children in their samples as well as mixed ethnicities.

Theory of mind and Income Differences

In contrast to previous findings, no significant differences were found among ToM reasoning across low and middle household incomes. Results showed a significant difference in income between children's' language; English speakers ($40,000-$50,000) was slightly high above average, whereas Spanish speakers ($10,000- $20,000) was below average as to our area sample.

Limitations

This study only included children in the Rio Grande Valley, which consists of Hispanic predominantly. The results do not generalize to the majority or other minority groups making

this a non-random sample. I was unable to include children from high-income families; the sample only consists of low and middle-income households. Also, parents who allowed their child to participate in this study may have been particularly more involved in their children's cognitive development and may practice "better" parenting strategies than parents who did not choose to enroll their child in the study, making this a bias sample. In addition, the disciplinary questionnaire that was used in this study was all self-reported by parents. The parenting strategies questionnaire leaves room for parents to report "good" parenting strategies and not the real parental practices they follow. Lastly, English-speakers standardized language scores did not significantly relate to ToM as previous studies have found.

Future Research

Future research in this area will need to focus on obtaining a better-detailed response on general discussion (GD) responses. This will allow a better understanding of the actual parent-child discussion, in turn, simplifying the coding for parental responses. In addition, more disciplinary questions should be added in order to have a more concrete disciplinary response from parent(s). As per Domenech Rodriguez et al., (2009) many studies, with the inclusion of this one, have gathered information on parental practices by using only survey measures, which have obscured or confused results; future studies should observe parental practices in addition to parental surveys in order to have a more concrete measure. Also, future researchers should include more than two ToM tasks in their study to assess the children's cognitive development.

Conclusion

In this study participants came from predominantly Hispanic families, extending research on ToM and parental strategies to include the Hispanic population. Previous studies have

supported that children's language abilities are essential as a source of information that helps define mental state terms. Given that there were some differences in critical variables between children tested in English and Spanish in this study, analyses were conducted to examine relations among variables in each language group. ToM and age were positively significantly related in both groups; however, ToM and vocabulary were related only in English. In the Spanish group, vocabulary positively related with age and parenting was positively related with ToM. This form of grouping by language tested provides a foundation for future research on culture and ToM.

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APPENDIX A

APPENDIX A

ID: _____ (Please do not write your name on this form)

Demographic Information Survey

1. How many adults currently live in the child's household?_____

   Please circle all that apply:

   (Step)Mother (Step)Father Grandfather Grandmother Other_____

2. How many <u>older</u> siblings live with your child? _____

3. How many <u>younger</u> siblings live with your child? _____

4. What language does your child currently understand better? English or Spanish

5. What language can your child currently speak better? English or Spanish

(Step)Mother:
Age_____
Ethnicity _____
Religious Affiliation _____
Highest Educational Level Completed
_____ Grade School
_____ High School/GED
_____Vocational/Technical School
_____ A.A. Degree
_____B.A./B.S. Degree
_____Masters or Professional degree
_____ Ph.D. /M.D./J.D.
Currently Employed? Yes ____No____
Occupation_____

(Step)Father:
Age_____
Ethnicity _____
Religious Affiliation _____
Highest Educational Level Completed
_____ Grade School
_____ High School/GED
_____Vocational/Technical School
_____ A.A. Degree
_____B.A./B.S. Degree
_____Masters or Professional degree
_____ Ph.D. /M.D./J.D.
Currently Employed? Yes_____ No ____
Occupation_____

Total Household Income Yearly:

_____ Less than $10,000
_____ 10,000-20,000
_____ 20,001-30,000
_____ 30,001-40,000
_____ 40,001-50,000
_____ 50,001-60,000
_____ 60,001-70,000
_____ 70,001-80,000
_____ 80,001-90,000
_____ 90,001-100,000
_____ Over 100,000

APPENDIX B

APPENDIX B

False belief

(Place Crayon box on table)

Researcher: *Take a look at this box.*

Inference Question: What do you think is in here? _____

Researcher: *I am going to show you what is in here. It is a penny.* [Remove penny and let child touch it. Put penny on table near box.] *Now I am going to put the penny back inside the box.*

Control Question 1: What kind of box is it?_____

Control Question 2: What is really inside the box? _____

[Open box to show penny, close again. NOTE: If child fails control, retell story.]

Belief Question: What if another child came in who hasn't seen inside this box.

When he first looks at the box, before he opens it, will he think there is

Crayons or a Penny inside? Penny or Crayons inside?

Child's Response:_____

Justification question: Why will the other child think that?

Child's Response:_____

APPENDIX C

APPENDIX C

True belief

(Place Oreo cookie box on table)

Researcher: *Take a look at this box.*

Inference Question: What do you think is in here? _____

NOTE: If necessary, ask in this order (circle if used): Avoid telling the child its Oreo cookies.

I. "What does the box look like it will have inside?
II. "Can you guess what will be inside?"
III. "What kinds of things come in a box like this?

Researcher: *Now I am going to show you what is in here. It's a marker. Now I am going to put these cookies inside the box instead.*

Control Question 1: What was inside the box first? _____

Control Question 2: What is inside the box now? _____

Researcher: *I have a friend standing right outside the door. (S)He's never seen inside this box.*

Belief Question:

When (s)he first looks at the box, before (s)he opens it, will (s)he *think* there are

Cookies or a marker inside? A marker or Cookies inside?

Child's Response: _____

Justification Question: "Why will my friend think that?"

Child's Response: _____

BIOGRAPHICAL SKETCH

Nydia E. Martinez obtained her undergraduate degree in August 2009, a Bachelor of Science in Psychology, from the University of Texas-Pan American. Ms. Martinez graduated with a Master of Arts in Experimental Psychology with a concentration in BCBA (Board Certified Behavior Analyst) in December 2011 also from the University of Texas Pan American. Ms. Martinez aspires to work as a BCBA for a few years before obtaining her PhD in Experimental Psychology, BCBA.

Ms. Martinez currently lives in McAllen, TX. All correspondence should be directed to her parents' residence at 54 San Agustin St. Rio Grande City, TX 78582. She may be also contacted via email at nydiam09@gmail.com.