

“I think he can”: Mothers’ ability mindsets and the development of cognitive trust in toddlers

A thesis

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## **Abstract**

Over the past decade the number of Spanish-speaking children in US schools has increased rapidly. However, these students continue to demonstrate low academic performance and be at-risk for academic failure. Understanding the protective factors that can help these children achieve academic resilience is integral to helping them achieve academic success. One protective factor that is driven by parenting cognitions rooted in cultural beliefs is cognitive trust. Cognitive trust is the ability to seek out an adult for assistance in completing a challenging academic task. Research looking at parenting mindsets suggests that children are more likely to seek out an adult with an incremental mindset (the belief that children are capable of changing and their abilities are not static) in order to help them overcome a challenging academic task. The present study aims to look at how children develop cognitive trust in adults as a result of parenting mindsets and values. It is hypothesized that mindsets will influence the way toddlers develop cognitive trust in their mothers.

To test this hypothesis, 10 Spanish-speaking toddlers were asked to complete a series of problem solving tasks and will be assessed on their completion of the task as well as by the involvement of the caregiver that is necessary to help the child persist in completing the tasks. As hypothesized, the majority of mothers in this sample exhibited an entity mindset. In order to understand the relationship between mindset and cognitive trust Pearson's  $r$  was correlated. When controlling for caregiver's education findings suggest that there is a strong relationship between caregiver's mindset and the child's help seeking behavior. These findings help educators to understand how children are influenced by their parent's mindsets and the power such an influence can have on a child's ability to seek out an adult to help accomplish academic tasks. Understanding the development of cognitive trust is integral to understanding how

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children perceive educators and their parents as individuals who can help them achieve academic resilience when faced with learning challenges.

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### **Context for the Proposed Study**

Over the past decade, the number of Spanish-speaking children in American schools has increased rapidly. However, our understanding of how to serve these children in an effective way is lacking. To increase our knowledge about developing academic success in these children it is important to consider the roles that parents and teachers have in helping children complete challenging academic tasks. Research in this area focuses primarily on the impact that White American parents mindsets have on school-aged children's success. There is a significant gap in the literature that not only fails to consider the cultural implications of such mindsets but also the onset of the development of cognitive trust. Understanding these two domains is imperative to enhancing our knowledge about how children process parents mindsets in order to develop academic resilience (Marsh, 2006).

When faced with a challenging academic task, children who do not have access to the tools necessary to help them succeed often feel frustrated, anxious and confused (Dweck, 2000). These feelings of incompetence weaken the child's motivation and often times cause him to give up and not complete the task (Bouffard et al., 2005). Nevertheless, despite such feelings there are children who exhibit resilient functioning and are able to overcome the challenging academic task.

As expressed by the risk-resilience paradigm, resilience refers to the dynamic interaction between risk and protective factors – internal and external to the individual – that act to modify the effects of adverse life events (Rutter, 2000). Delineating the extent to which an event is adverse challenges many individuals because adversity is a nebulous term that attempts to categorize experiences that have varying psychological and cultural consequences specific to an individual (Morrison & Cosden, 1997). Moreover, because individuals often view adversity as a

significant life trauma such as abuse and neglect, the classification of daily stressors such as learning a difficult task is often not addressed in the resilience literature. Nevertheless, there is growing recognition of the contribution of the construct of resilience toward our in-depth understanding of the challenges faced by students with learning disabilities and of the roots of their heterogeneous functioning (Margalit, 2004). Understanding academic resilience in children with learning difficulties, especially the role of external protective factors such as parents' perceptions and household ecology is an integral part of servicing these youth. Research reveals several core elements of external protective factors developed in schools including; the caring teacher-child relationship, high expectations, and the provision of opportunities for participation and contribution, which promote resilient functioning in children when learning a challenging academic task (Benard, 2000). Despite empirical support for these tenets, intervention programs servicing children with learning disabilities target the development of the child and overlook the important role that parents and teachers play in fostering children's resilience in learning.

An important protective factor in developing resilience in learning is cognitive trust. The term cognitive trust refers to the ability of an individual to perceive the availability of another individual to cooperate in helping one to achieve and overcome a challenging academic task. Children often develop cognitive trust because of schooling or the completion of an academic-related task with the help of an adult. Often times this trust is not achieved until later in a child's development due to schooling and exposure to academic tasks (Moorman & Pomerantz, 2010).

Studies investigating the role that parents and teachers play in developing cognitive trust have typically focused on older school aged children and paid close attention to socio emotional behaviors such as parental control (Ginsburg & Bronstein, 1993; Gottfried, Fleming, & Gottfried, 1994), parental responsiveness (Hokoda & Fincham, 1995; Salonen, Lepola,



&Vauras,2007), and parental warmth (Richman & Rescorla, 1995), or have examined instructional behaviors such as the cognitive demand involved in parental mediation (Sigel, 2002) or the contingency with which instructional scaffolds are provided (Pratt, Green, MacVicar, & Bountrogianni, 1992). The contexts in which these studies have been conducted have typically considered parenting in White American families and have generalized their findings to other cultures. As a result, it is unclear whether or not behaviors that appear in White American families would also appear in other cultures.

Over the past decade, the number of Spanish-speaking children in American schools has increased rapidly (doe.gov, 2010). It is important to understand the impact that culture has on the learning experience in order to provide children with the support necessary to become successful academically. The aim of the present study is to explore how Spanish-speaking parents help children develop cognitive trust through their responsiveness, instructional behaviors and cognitive demand to influence motivation to complete a series of challenging academic tasks. Current research focusing on these issues looks primarily at school-aged children and their parents involvement in academic tasks such as homework (Levin, Appelbaum-Peled, Katz, Komar & Meiran, 1997). Due to the lack of research focusing on the early development of cognitive trust, the present study serves to extend the knowledge of these issues by investigating the beginning development of cognitive trust in preschool-aged children.

In order to situate the aims and the possible contributions of the present study, the following sections provide an overview of the literature exploring the dimensions of the parent-child interaction that help foster the development of cognitive trust.

### **Influence of Family Values on Parenting Practices and Cognitions**

Cognitions about parenting vary greatly across cultural groups according to family values (Bornstein & Cote, 2004). As a result, cultural background plays a significant role in the development of parenting techniques and strategies (Rogoff, Turkanis, & Bartlett, 2001). Research demonstrates that such techniques influence parents' involvement in children's learning, a precursor for academic success.

#### *White American Families*

When comparing low-income White American parents to Puerto Rican families with preschool-aged children, researchers found similarities in the competencies that these families valued. In particular, both White American parents and Puerto Rican parents valued obedience and exhibited a concern that their child behave respectfully, and be accepted by the greater community (Acchpal et al, 2007). These findings parallel those of the theory postulated by Kohn (1977) which stated that working class families more so than middle class families value obedience because it is thought to bring about success.

Nevertheless, despite similarities in competencies valued by White American families and Spanish-speaking families, significant differences exist with regards to overall family values that influence parenting strategies and cognitions. In general, White American families value autonomy, creativity, individuality and place less of an emphasis on religion and the family structure (Harwood, Schoelmeruch, Schulze & Gonzalez, 1999) These values influence the interactions between White American mothers and their children, particularly with respect to their instructional behaviors.

In contrast to the authoritarian parenting styles of Latina mothers evidenced in the literature, White American parents are said to exhibit a more authoritative style that encourages

inductive reasoning skills (Baurmind, 2002). Recent studies indicate that the authoritative parenting style exhibited by White American families is related to contingent scaffolding that parents engage in when helping their child to complete an academic task (Pino-Pasternak, Whitebread & Tolmie, 2010). One study carried out by Mattanah, Pratt, Cowan, & Cowan (2005) considered the effects of authoritative parenting on children's ability to complete long division problems in the fourth grade. In this study parenting, styles and parental scaffolding during long-division tasks were assessed at the beginning of a child's fourth grade academic year. At the end of the school year the students' creative thinking, problem-solving abilities and task-orientation were assessed. Findings demonstrated that there was a positive relationship between authoritative parenting and parental scaffolding. However, only parental scaffolding predicted academic competence at the end of the year when authoritative parenting was controlled for. This finding is significant because it highlights a specific parenting behavior (scaffolding) related to the authoritative parenting style apparent in White American families that aids in academic success.

Although this work targets school-aged children, its implications are important to consider for toddlers and preschool-aged children as well. Specifically, in the study at hand, this information allows one to contextualize parenting practices in the White American sample and look for specific trends, particularly parental scaffolding at an early age and the onset of cognitive trust that would allow him or her to achieve success when completing a challenging academic task.

### *Spanish-speaking Families*

Due to the diversity in the Spanish-speaking culture, it is often difficult to identify specific cultural traits that can be generalized to the entire population. However, on the whole,

the majority of research focusing on the Spanish-speaking culture demonstrates the core of parenting cognitions as being rooted in familismo (familism), respeto (compliance) and religion (Calzada, Fernandez & Cortes, 2010; Bridges, Figueroa & Mireles, 2010, Inglehart & Basanez, 2004). In order to assess these values Calzada et al (2010) examined the cultural values of 48 Dominican and Mexican American mothers of preschoolers through focus groups in which they described their core values as related to their parenting role. Responses from the focus group interviews indicated that respect (obedience, deference, decorum and public behavior), family and religion were the values that had the strongest influence on their parenting role. In addition, when asked about their perceptions of American values they stated that “Americans give their children more independence, are more open-minded, dedicate more time to their children and concentrate on teaching activities” (Calzada et al., 2010, p. 81). These responses indicated that Hispanic parents did not perceive themselves as teachers of academic tasks but rather as teachers of rules and developers of closely connected families (Rodriguez & Olswang, 2003).

This finding is consistent with other research investigating the instructional practices exhibited by Latina American families when helping their children to complete an academic task. As investigated by Moreno (1997, 2003), Mexican American mother’s exhibit different teaching strategies than their White American counterparts. In this study, 17 Mexican American and 19 White American mothers were asked to teach their toddlers how to tie their shoe laces so that they could complete the task themselves. Findings revealed that contrary to popular belief, Mexican American mothers are effective instructors; however, their strategies for instruction differ greatly from their White American counterparts. For example, White American families were found to use commands that are more nonverbal whereas, Mexican American families were found to use more direct verbal commands. This discrimination is important in that it connects to

the principal parenting values of these two cultures, in which White Americans tend to be more inductive in order to establish autonomy and Mexican American mothers tend to be more direct in order to develop cooperation (Sanchez & Plata, 2010).

In addition to integrating family values into parenting practices, Hispanic families are typically identified as using authoritarian parenting strategies compared to authoritative strategies exemplified by White American families (Bridges et al, 2010). It is typified that Latino parents emphasize direct discipline including scolding, harsh threats and physical punishment and that parents in low-income Latino families are more likely to use physical punishment than middle-class white American families (Calzada & Eyberg, 2002; Cardona et al 2000). In order to understand the tactics used by Latina mothers in order to evoke compliance, Bridges et al (2010) investigated the daily home activities of Mexican American mother's in which mother's attempted to correct their 4-year-old child's behaviors or encourage the completion of a task. Of the 1,477 compliance attempts observed, the majority of the attempts were initiated by a verbal command. More specifically, researchers observed most mothers relied on low-power assertive methods rather than inductive strategies that involved reasoning. One might argue that this can be attributed to the Mexican American belief that young children conform more readily to adult authority. This causes Mexican American mothers to rely more on direct commands that specify the expected behavior which allow young children to engage in play, social interactions, and household tasks in a predictable and clearly understood manner (Yoshikawar, Weisner, Kalil, & Way, 2008).

In congruence with the education literature, the aforementioned parenting practices are important to understanding the activities that working-class Spanish-speaking families tend to engage in with their children. As can be inferred from the literature, most mothers have a

tendency to engage with their children in the context of non-academic tasks that foster cooperation and social development, specifically during the preschool years (Acchpal, Goldman, & Rohner, 2007). For instance, it is known that Latino parents read less frequently with their young children than their White American counterparts (Schneider, Martinez & Owens, 2006). Understanding how family values and parenting cognitions impact opportunities to engage in academic tasks, is integral to understanding how children develop the cognitive trust in parents and in other adults that is necessary to help them attain success when completing a challenging academic task.

### **Ability Mindset**

A second contributing factor to the development of cognitive trust in children is the ability mindset of parents. Such mindsets coupled with value-based practices, influence the way in which the child interacts with the parent to complete a challenging academic task. It is clear that it is not only the parents' involvement that is important but also the quality of involvement (Grolnick, Gurland, DeCoursey & Jacob, 2002). In order to understand the mechanisms that influence the quality of parents' involvement, one must consider the mindsets of parents about their child's capabilities.

Two mindsets proposed by Dweck and Colleagues are entity mindset and incremental mindset (Dweck & Bempechat, 1983; Dweck & Leggett, 1988). Entity mindset refers to the belief that the child's ability is relatively fixed and is resistant to change. Moreover, a child's capabilities are viewed as reflecting innate competence thus making a challenge threatening because failure indicates a permanent deficit. When a challenge is present, the parent often exhibits helplessness, ineffective strategy use (completes the task for the child) and a negative affect (Blackwell, Trzensiekwsk, & Dweck, 2007). In contrast, having an incremental mindset

means that a parent views their child's ability as something that can be changed with effort and as a result, challenge is not perceived as threatening but rather as an opportunity to develop competence. In this regard, the parent exhibits a heightened persistence (providing instructions), effective strategy use (scaffolding) and a positive affect (Blackwell et al, 2007).

When considering the effects of these two mindsets, with respect to parents' socialization of their children, several attitudes can be noticed. First, parents who have entity mindsets often exhibit distress or frustration when their children perform poorly. In turn, these parents are more inclined to take control of the situation and focus the child on the end product in order to ensure success (Pomerantz & Dong, 2006). In addition, they are more likely to underestimate their child's abilities by providing too much help (Gleason & Schauble, 1999). On the other hand, parents who have incremental mindsets are more apt to believe that their children's abilities are malleable and can be developed. As a result, these parents are more constructive in their parenting and view poor performance as something that can be changed with effort. Therefore, these parents often encourage their children to generate their own strategies, remain positive and promote autonomy. Therefore, as research suggests, children with parents who have entity mindsets and view their children as incompetent when faced with a challenging task, are less likely to be successful on subsequent tasks (Pomerantz & Dong, 2006). An integral aim of the present study is to understand how these mindsets influence Spanish-speaking children.

In order to examine the effects that these mindsets have on learning, Moorman and Pomerantz (2010), 79 mothers of early elementary school children were induced to either hold an incremental mindset or an entity mindset. The mothers and their children were asked to complete a set of challenging academic tasks. Mothers who held entity mindsets demonstrated more control and performance-oriented teaching, whereas mothers who held incremental mindsets

demonstrated constructive participation in helping their child to complete the task. Findings from this study are significant because parents with an entity mindset make it difficult for their child to be successful on academic tasks, thus causing the child to be helpless and perhaps give up on the completion of the task.

Although there is little empirical evidence supporting the role that entity and incremental mindsets play in the development of toddlers, the proposed study serves to investigate how the parent's mindset impacts the child's cognitive trust in the parent to help complete a challenging academic task.

### **Motivation**

Parenting mindsets are impacted by family values, which couple together to impact motivation. Motivational support and mastery motivation are two additional domains that will be considered when delineating a child's ability to develop cognitive trust in order to be resilient when faced with a challenging academic task.

#### *Motivational Support*

As suggested by the literature, the parent's responsiveness to the child also plays a significant role in motivating the child to complete a task (Dweck, 1999). When children are faced with a challenging task it is often found that constructive external cues motivate the child to complete the task (Hart & Risley, 1995). For example, Kamins and Dweck (1999) demonstrated that children develop motivational patterns based on the type of feedback they receive. As one would expect, children were found to exhibit higher levels of helpless behavior after receiving criticisms and negative feedback. In contrast, children who received positive feedback were more likely to continue working on a challenging task and choose subsequently harder tasks when given the option. Likewise, motivational researchers argues that contingent



support allows children to establish comfortable levels of challenge, that result in strategy use, persistence as well as positive feelings with one's own abilities (Meyer & Turner, 2002; Vauras, Salonen, Lehtinen & Lepola, 2001). These results are significant because an important element in building resilience and successfully completing challenging tasks is having the motivation to do so which is often evoked by others particularly one's parents (Meltzer, 2010)

### *Mastery Motivation*

In addition to external factors that influence motivation, research shows that children develop different motivation patterns (Burhans and Dweck, 1995). Mastery motivation refers to the inherent drive that leads young children to explore and master their environment expressed through interest and persistence in challenging activities (Bullock & Lutkenhaus, 1988; Jennings, 1993). Mastery motivation is influenced by a child's intrinsic motivation which is often increased by parent's positive feedback. In addition, positive maternal evaluative feedback that promotes competence and autonomy tends to increase the intrinsic motivation that leads to mastery motivation (Deci & Ryan, 1992). To demonstrate the development of mastery motivation Kelley, Brownell and Campbell (2000) conducted a longitudinal study looking at mastery motivation and self-evaluative affect in toddlers. Seventy-five toddlers and their mothers were assessed for one year. Beginning at 24 months, the children engaged with their mother's in easy and difficult achievement tasks. The toddler's mastery motivation was measured on the basis of persistence and avoidance of mastery activities. Results showed that children who received positive and corrective maternal feedback at 24 months more readily engaged and persisted in challenging activities at 36 months. This finding indicates that mastery motivation is influenced at a young age, and the basis on which a child might persist on a challenging

academic task is determined not only by maternal feedback and inherent characteristics of this particular sample but also by the intrinsic motivation, that influences mastery motivation.

### **The Present Study**

#### *Research aims and hypotheses*

As previously mentioned, most of the work done in this area has focused on the impact of parenting cognitions, mindsets and support on the parent child interaction. However, very few studies have examined how a child develops cognitive trust as a result of parenting and adult behaviors. Therefore, the purpose of the present inquiry is to look specifically at how children in Spanish-speaking cultures develop cognitions about other adults to help them complete a challenging academic task. Moreover, because the vast majority of literature focuses on school-aged children, the present inquiry serves to investigate the initial stages of development of cognitive trust as can be evidenced in toddlers.

It is expected that while working on a series of challenging academic tasks, Spanish-speaking children will exhibit higher levels of cognitive trust in the examiner than in their mother. It is predicted that Spanish-speaking children who exhibit mastery motivation will seek out the adult who exhibits an incremental mindset. In this case, it is proposed that Spanish-speaking children will seek out the examiner more readily because it is predicted that family values will influence Spanish-speaking mother's parenting cognitions, causing them to have an entity mindset that inhibits mastery motivation. Moreover, in the event that the child does seek out the parent for help, it is predicted that Spanish-speaking mothers will complete the task for their child and therefore the child will not be resilient in completing the academic task on their own.

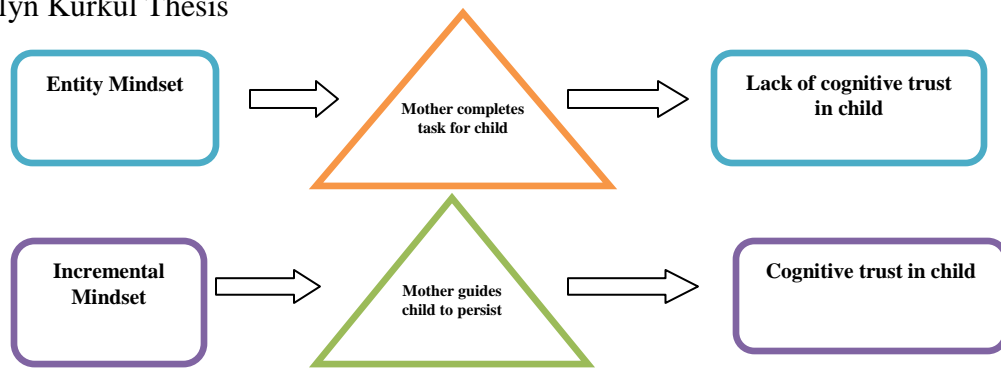


Figure 1. Proposed hypotheses

As indicated by Figure 1 it is hypothesized that the difference in mindset exhibited by the caregivers will influence the way that toddlers develop cognitive trust in their mothers.

## Method

### *Participants*

The present study utilizes a subset data that were collected for a family values project carried out under the auspices of the Cultural Change Institute (CCI) at the Fletcher School and the Department of Child Development at Tufts University. The Family Values Intervention Project, under the direction of Dr. Martha Julia Garcia-Sellers, explored the effects on children's behavior and mothers' interaction of an intervention designed to promote toddlers' autonomy and intellectual curiosity. Ten immigrant families from Latin America composed the sample. The intervention consisted of 12 intervention sessions; the data for the present study were drawn from 3 of those intervention sessions.

Participants came from low-income families and lived in an urban setting. Of the toddlers who participated (19 to 24 months old;  $M_{age} = 22$  months) 3 were females and 7 were males. All of the children were recruited from East Boston Playgroups that were facilitated under the direction of the Count Down Kindergarten Program through the Massachusetts Department of Education's initiative to promote school readiness in underserved communities. Caregivers ranged in age from 22 to 50 years ( $M = 32.4$ ,  $SD = 14$ ) with 40% from El Salvador, 30% from

Colombia, 10% from Mexico, 10% from Dominican Republic and 10% from Honduras. The majority of caregivers were unemployed or held unskilled jobs (cleaning ladies etc). Caregivers were generally not highly educated: 20% did not make it to high school, 20% had some high school education, 30% had a high school diploma and 10% had some college education

### *Design and Procedure*

In this quasi-experimental design, children and their caregivers were asked to complete three different challenging academic tasks across three different intervention sessions. The three tasks were administered by the same home visitor who was a native Spanish speaker.<sup>i</sup> Each task took approximately 10 minutes to complete. The three tasks consisted of: a box-task, a foam puzzle task, and a wood puzzle shape recognition task.

#### *Box Task*

The first task which was the box-task was completed during the second intervention session. The box task is a challenging problem-solving task that is at the threshold of a toddler's ability to complete a task independently. Similar to a jigsaw puzzle, the task is composed of a set of 4 nested blocks and a ball. The object of the activity is for the child to fit the pieces back inside the larger box so that it can be closed (Garcia-Sellers & Church, 2000). The activity is designed to elicit interactions between parents and their children.

At the onset of the task, the child was presented with the box and told to look inside the box at the many different blocks held inside. The examiner then handed the box to the child and asked him to open the box and remove the pieces. As the child was completing this part of the task, the examiner described the task to the caregiver indicating to her how challenging the task could be but how children loved trying to complete it. In addition, the examiner revealed the purpose of the task which was to promote persistence and motivation. After discussing the task

with the caregiver, the examiner reverted her attention back to the child and the box task. If the child had not yet removed the pieces from the box, the examiner proceeded to take out the pieces and line them up in front of the child. The examiner counted the pieces aloud with the child and categorized the pieces by their shapes and colors. Following this discourse, the examiner proceeded to tell the child that he should try to fit the pieces back inside the box so that it would be able to close. The child was then prompted to begin working. The task ended when all of the pieces were back inside the box and it was able to be closed.

#### *Foam Puzzle Task*

The second task, completed at the onset of the eighth intervention consisted of two foam puzzles. The purpose of this task was to promote persistence and motivation. This was explained to the caregiver as the child explored the two puzzles. One of the puzzles was in the shape of a train while the other was in the shape of a lady bug. Participants were given the option as to which puzzle they wanted to complete first. In all but two cases, the toddlers chose to complete the ladybug first. In order to complete this task, the examiner directed and assisted the child in removing all of the pieces. The child was then given several minutes to attempt the task on his or her own. If the child was not successful, the examiner directed the child to distribute the pieces to the caregiver, to the examiner and to him or herself. In most cases the child only distributed one piece to the caregiver and examiner and then proceeded to continue working on the puzzle by seeking assistance or receiving guidance from the examiner or the caregiver. Once all of the foam pieces were fit properly back into the frame and the appropriate shape was achieved (i.e. the ladybug) the task was complete and the child began working on the second puzzle.

### *Wooden Puzzle Task*

The final task which was introduced during the tenth intervention session, was a wooden puzzle designed to promote intellectual curiosity, persistence and problem solving skills. The task consisted of 9 different wooden shapes of various colors that were divided into two pieces and fit into a specific space on a wooden board. The child was asked to remove the pieces from the board. Once all of the pieces were removed from the board, the examiner directed the child to place the pieces back on the board by forming the different shapes by matching the various halves. In many cases the examiner outlined the shapes with her finger both on the board and on the physical shape in order to illustrate the task to child. Likewise, in several cases she would place one half of a shape on the board and ask the child to find the other shape. The task was completed once all of the shapes were intact and in their appropriate space on the board.

### *Measures*

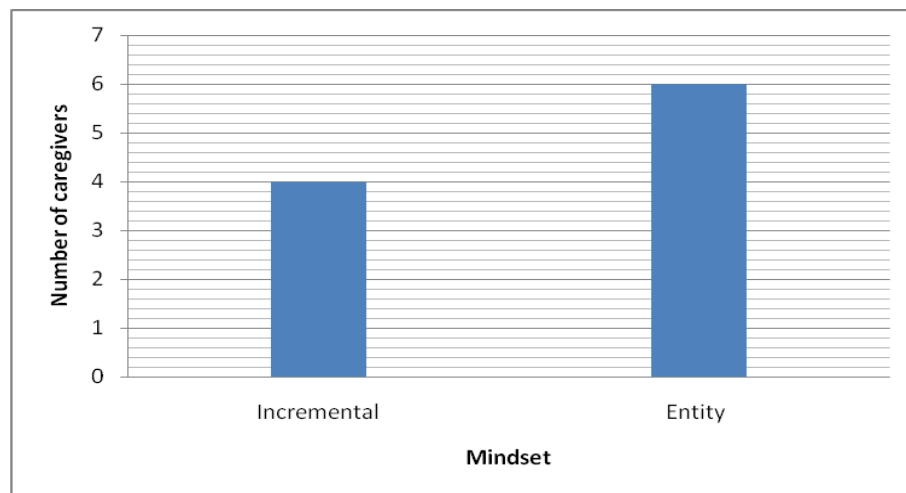
#### *Family Values*

The data used to assess family values was collected during an initial assessment session that took place before the intervention began. To evaluate family values, mothers were asked to rank order 15 items that reflect different family values. Items included: religion, education, obedience, money, respect, independence etc.

#### *Maternal Mindset*

To determine whether the caregiver had an incremental or entity mindset, caregivers were asked several questions regarding their child's educational potential during the initial assessment. Three questions in particular were considered when determining the caregiver's mindset including: What are your expectations for your child's school achievements? Do you consider these expectations to be reachable? And How do you help your child persist in accomplishing a

task? The qualitative responses provided to these questions were categorized by considering the language that was used to respond to each question. For example, many mother's used phrases such as "Godwilling" and had set expectations of their children such as "I want her to be a doctor," that were not indicative of the own child's capabilities but rather what they felt was "innate" to the child. Such responses were coded as entity responses. In contrast, some caregivers responded with notions such as "I don't know how far she will go, I think she can do whatever she puts her mind to, I don't have specific expectations," this type of response was more indicative of an incremental mindset in which the caregiver thinks their child is capable of doing what they want and are malleable in the sense that their intelligence is not static, thus allowing them to achieve anything they want in life. Therefore, responses which indicated that the caregiver did not have any expectations and felt as though the child could mold their own destiny were coded as incremental mindsets. The coding of these responses was done prior to coding the parent-child interactions in order to best avoid biases. Figure 2 illustrates the mindsets exhibited by the caregivers in this sample.



*Figure 2* Number of caregivers with incremental and entity mindsets in the sample.

*Behavioral Coding of Mother-Child/Child-Examiner Interactions*

Caregivers', children's and examiner's behavior during each of the 10-minute interactions were coded every 20s prior to knowing which mindset the mother demonstrated. The frequency of which behaviors occurred across 3 different dimensions were recorded. The first dimension, child, was divided into three subcategories: works alone, seeks examiner and seeks caregiver. Works alone could be defined as any behavior that the child initiated on his or her own to engage with the task, irrespective of outside influences. Seeks examiner or caregiver was defined by the child's help-seeking behaviors, in which he or she sought out either the examiner or the caregiver by gesturing, or verbalizing in order to get assistance.

The second dimension and third dimensions are quite similar. They differ in that one dimension focuses primarily on the caregiver's behavior and the other focuses on the examiner's behavior. The subcategories which appeared across these two dimensions included directs the child and does for the child. Due to many instances of the examiner or caregiver needing to redirect the child's attention to the activity, these occurrences were not coded as directing behaviors. Rather, directs child could be defined as any gesture or verbalization made to the child to help him or her to better understand and complete the task. For example, pointing to an empty space on a puzzle and asking "what piece do you think goes here," or telling the child to turn a puzzle piece around in order for it to fit properly. In contrast, "does for the child" was defined by the physical act of either the caregiver or the examiner to manipulate the task in order to complete it. For instance, placing a piece of the puzzle in the puzzle or rearranging the pieces of the puzzle after the child put them in their places.



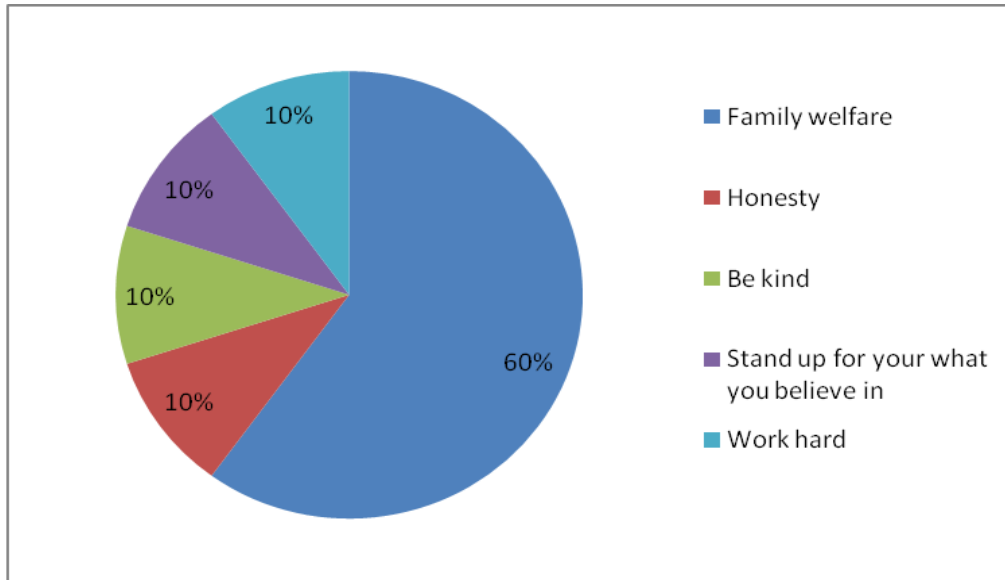
The frequency with which each of the aforementioned subcategories occurred across the three dimensions was tabulated and combined across all three tasks to arrive at a composite score. The composite score was used for analyses.

### *Cognitive Trust*

In order to examine the development of cognitive trust two variables were created. The first variable examined whether or not the child completed the task and the second variable investigated with who the child completed the task. In several cases the child completed the tasks alone, while in other cases the mother completed the task alone. Moreover, in some instances the task was completed with the caregiver while in other cases it was completed with the examiner. It is thought that with whom the child completes the task is indicative the level of cognitive trust the child has in that particular person. For example, in one case the outwardly refused her mother's help when the mother tried to be involved. This refusal occurred across two of the three tasks. However, the child eagerly accepted guidance and assistance from the caregiver. Therefore, considering how the task was completed is important when considering the development of cognitive trust.

## **Results**

When considering the family values of these families, several factors emerged that contributed to the understanding of this sample. As shown in Figure 3. 60% of the sample indicated that they valued family welfare above all else, 10% indicated honest, 10% said being kind to the sick and poor, 10% said working hard and 10% standing up for what one believes in.



*Figure 3* Values that caregivers ranked as the most important to them and their families

Furthermore, most caregivers ranked education (obtaining high grades) in the middle of the 15-items, the majority of mothers ranked education as 9 out of 15 in terms of importance.

To determine the relationship between caregivers' mindsets and the development of cognitive trust the following theoretical model was developed as the basis for analyses using multiple regression:

$$\text{Seekscaregivertotal} = \beta_0 + \beta_1\text{ParentMindset} + \varepsilon$$

In order to discuss the findings from the analyses, one must consider the measurement error that may impact the results. When considering measurement error in the predictor (Parentmindset), it does not appear as though artificial binning occurs. However, the occasion, or the day on which the task was completed (how the mother was feeling about the child when she answered the questions) may result in measurement error. There does not appear to be any unsystematic and random pitfalls with respect to rater. However, the task, and whether or not the caregiver interpreted the questions in the way they were intended may have also caused measurement error. Therefore, because the measurement error is present in the predictor, our

population estimation is biased and the inferences made from this sample may lead to biases in the population.

Furthermore, when considering measurement error with respect to the outcome (Seekscaregivertotals) artificial binning does not occur. However, the occasion, the days on which the tasks were completed and whether or not the child was engaged, tired, or alert may be a cause for measurement error. On the other hand, rater would not pose a potential threat to measurement error. Finally, the task may cause measurement error due to the difference in motivation in this sample. Due to the fact that the tasks are designed to be challenging, some children may be less motivated to complete them. Therefore, the task may present measurement error. The measurement error present in the outcome variable adds noise and makes effects harder to detect. Hence, when considering the residuals in the analyses we can attribute them in part to our measurement error. Likewise, the correlations present from analyses may be weakened due to the measurement error.

Univariate analysis of the outcome indicated a normal distribution with a peak at 2. The range is from 0 to 5 with a midspread of 1.5. The mean is 2.1 and the standard deviation is 1.85. That is to say that across all three tasks, the child sought out their caregiver on average, 2.1 times. However, the scores varied on average by about 1.85 more occurrences and 1.85 fewer occurrences.

Analysis of the predictor (Mindset) indicated a positively skewed distribution with a mean at 1.6 and a standard deviation of .52. This meant that many of the parents exhibited entity mindsets, and only several possessed incremental mindsets. The range is from 1 to 2 with a midspread of 2.

To further understand the relationship between these two variables, caregivers' level of education was controlled for.

Table 1

*Correlations Between Seeking Caregiver and Mindset when Controlling for Caregiver Education*

	Totalseekscareigver	Mindset	Caregiver Education
Totalseekscaregiver	1	.142	-.096
		.244*	-.007
Mindset	.142	1	.361
	.244*		.384
Caregivereducation	-.096	.361	1
	-.007	.384	

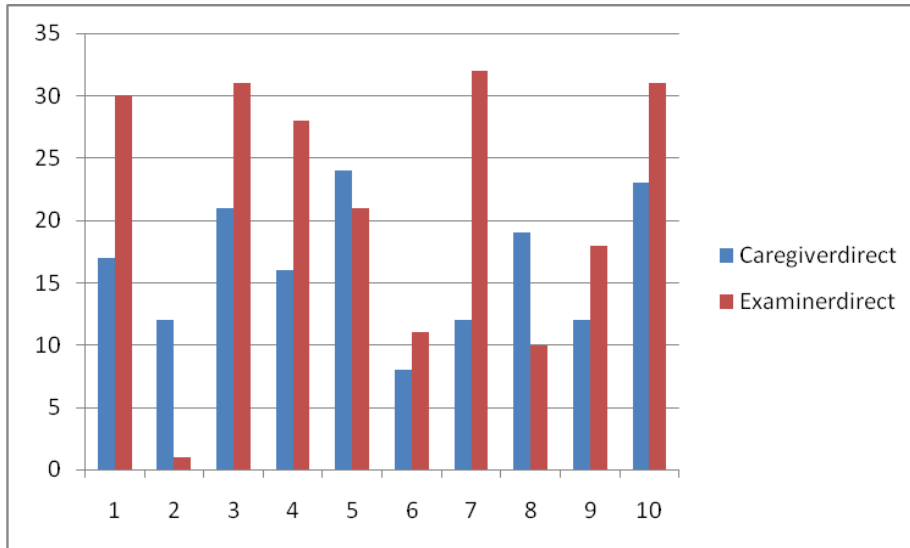
*Note.* A simple/partial correlation matrix in which the top entry in each cell denotes the simple correlation and bottom entry of each cell denotes the partial correlation controlling for CaregiverEducation (n=10).

When analyzing the relationship between Mindset and Seekscaregiver, controlling for Caregiverseducation, we found a correlation of .244. This is a stronger correlation than what we found when not controlling for anything. The correlation is significantly different than the simple correlation and when investigating reasons for this, one must consider the relationship between Mindset and caregiver education, and Seekscaregiver and caregiver education. The correlation between these variables is relatively weak, although mindset and caregiver education do appear

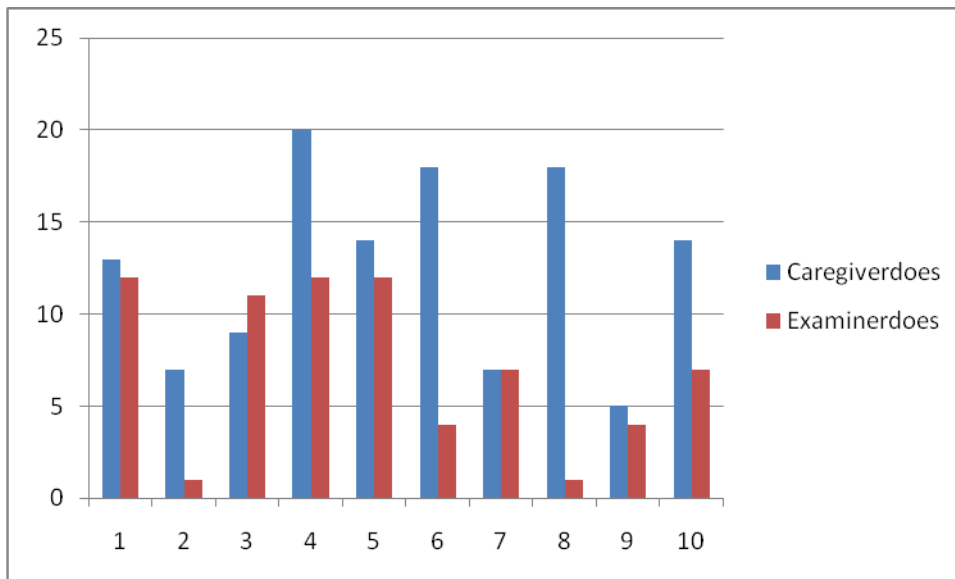
to have a stronger relationship than the other pairs. The researcher decided to control for this variable because it influences the predictor and outcome. The partial correlation matrix did not reveal any other statistically significant changes in correlations.

Moreover, although not significant, there was a trend in the data that indicated children of caregivers with incremental mindsets completed tasks more frequently on their own or with the assistance of their caregiver than children of parents with entity mindsets. Rather, children of caregivers with entity mindsets tended to complete tasks more frequently with the assistance of the examiner or the caregiver completed the task alone.

Likewise, the type of instruction that was delivered varied by the type of mindset that the caregiver had. In cases where the caregiver had a more incremental mindset, she delivered more instructions to the child than the examiner. However, in cases where the caregiver had an entity mindset, the examiner delivered more instructions. Fig 4 and 5 illustrate the behaviors of parents and how those with more entity mindsets had higher frequencies of doing the tasks for the child rather than guiding the child when all three tasks were combined. In particular, individuals 1, 3, 4, 7,8, and 9, who can be identified as having entity mindsets demonstrate a large discrepancy between the number of times the caregiver directs versus the number of times the examiner directs. In these cases the examiner directs the child significantly more than the mother directs the child. In Figure 5, when looking at those with entity mindsets one can see how mothers with entity mindsets do the task more for their child than the examiner and in most cases where the caregiver has an incremental mindset, there are more instances of the mother directing the child rather than doing the task for the child.



*Figure 4* Total number of times the caregiver directs their child across all three tasks compared to the total number of times the examiner directs the child across all three tasks.



*Figure 5* Total number of times the caregiver does the task for their child across all three tasks compared to the number of times the examiner does the task for the child across all three tasks.

### Discussion

The present data are congruent with Dweck's mindset paradigm which suggests that children will be more motivated to complete a task when assisted by an individual with an incremental mindset. To demonstrate this paradigm, the results from this quasi-experimental

design indicated that there is a relationship between caregiver's mindsets and children's development of cognitive trust. This supports the hypothesis which supposes that caregivers with incremental mindsets will provide more guidance and thus their children will exhibit higher levels of cognitive trust. As defined by the researcher, cognitive trust can be illustrated by the child's willingness to actively seek out the caregiver for assistance in completing a challenging academic task. More specifically, when the scores for seeking the caregiver were combined across all three tasks, and the caregiver's education was controlled for, there was a significant relationship between help seeking behaviors and caregiver's mindset. That is to say that children of caregivers who are well educated, tend to have a more incremental mindset and thus their children seek them out more readily to help them accomplish a challenging academic task.

The trend in this data also illustrated how children complete challenging academic tasks based on the mindset of the caregiver. For example, in most cases when the caregiver exhibited an incremental mindset, the child either completed the task alone or with the caregiver's assistance. In contrast, when the caregiver exhibited an entity mindset, the child tended to complete the task with the examiner or the caregiver completed the task alone.

Furthermore, a third finding demonstrated by this sample suggests that Spanish-speaking mothers are more inclined to teach their children by doing the task for them rather than using direct instructions. This is supported by the family values literature which suggests that the optimal goal of parenting for Spanish-speaking mothers is to achieve obedience and cooperation (Sanchez & Plata, 2010).

The findings from this study have many valuable implications for caregivers and educators alike. First, it is important to understand the impact that culture has on child rearing practices as well as parenting cognitions. As indicated by this cohort, Spanish-speaking mothers

tend to have an entity mindset, especially those with lower levels of education. Therefore, their patterns of interaction are different from what the literature suggests for white American caregivers. More specifically, the caregivers in this sample who had entity mindsets were more likely to complete the task for the child or the child was more likely to complete the task with the examiner. Interestingly, in the small grouping of children with caregivers who embodied an incremental mindset, these children were more likely to complete the task alone or with the help of the caregiver. This is interesting to note in that when trying to promote autonomy parents should know that their own mindsets about their children's cognitive capacities will effect their child's motivation, performance and ability to complete challenging academic tasks. Thus, cognitive trust is developed on the basis of cognitions about teaching and feedback that motivates the child to persist, and the development of such can be seen through the mechanism the child uses to complete the task. However, despite this supposition it is not indicative of a child's ability to develop cognitive trust, but rather it simply demonstrates the characteristics of the relationship necessary for cognitive trust to manifest.

Understanding these findings is important to the teaching relationship between children and adults. Cognitive trust may serve as a protective factor for academic resilience. Therefore, identifying its onset is of particular importance. More specifically, understanding cognitive trust may help to inform intervention practices as well as teaching practices to prepare children for school. One of the greatest challenges educators face is motivating students. By understanding the exposure that students have to academic tasks and the kind of support that can be expected from parents of different cultural backgrounds, teachers can be more aware and sensitive to the needs of these students. Henceforth, teachers can use the information gained from this study to



inform their practice and develop stronger home-school connections with students from diverse cultural backgrounds.

Although the findings from this study highlight interesting associations between family values, parenting cognitions, motivation and the development of cognitive trust, the relatively small sample size makes it difficult to reach causal relationships and to generalize to the larger Spanish-speaking population. Moreover, although it was initially proposed that the researcher would obtain a small cohort of White Americans as a comparison group, the ability to recruit participants without substantial incentives failed and the White American sample was not obtained. Therefore, it is difficult to make comparisons between the two groups. Lastly, because the study took place in the child's home, and on three different occasions by the same home visitor who is a native Spanish speaker, it is difficult to control for all of the extraneous influences (siblings, cousins etc.) Therefore, in some cases it was not easy to detect whether or not the child developed cognitive trust in an adult because they had another resource to help them complete the task.

Despite these limitations, the findings of this research are important in suggesting that the way in which parents perceive their children's abilities impacts the way they teach their children which in turn influences the way in which the child develops cognitive trust. Future studies should focus on a larger cohort of individuals and consider different cultural and socio-economic groups. Likewise, further research in this area is necessary to understand the developmental onset of cognitive trust and how this knowledge can be used to educate parents and to develop effective intervention programs for immigrant families.

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<sup>i</sup> Federica Cordido, a native Spanish speaker from Venezuela served as the home visitor on this project.