EXPLORING THE RELATIONSHIP OF RESOURCES ON FAMILIES THAT HAVE A CHILD WITH A DISABILITY: A LATENT TRANSITION ANALYSIS

By

CLINTON LYLE BROADBENT

Bachelor of Arts in Family, Consumer,
and Human Development
Utah State University
Logan, Utah
2009

Master of Science in Marriage
and Family Therapy
Utah State University
Logan, Utah
2013

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Dissertation Approved:

Brandt Gardner

Dissertation Adviser

Isaac Washburn

Lana Beasley

Bryan Hammer

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Abstract: Families that have a child with a disability are at tremendous risk for increased stress and negative outcomes compared to families that have a typically developing child. These effects can compound during times of transition. The current study analyzed the relationship of internal and external resources on the family adaptation process as the family had a child with a disability enter preschool. Using the FAAR model to conceptualize the process of adjustment and adaptation, 242 families were studied measuring their empowerment and support before and after the transition into preschool. A latent class analysis was used to identify different groups of families according to their scores on the latent variable while a latent transition analysis was utilized to calculate the probability of families changing classes during the transition. Covariates were also introduced to see the effects on transition probabilities. Lastly, child academic outcomes were gathered and compared between different family transition patterns. The study yielded 4 distinct classes with multiple unique transition patterns. The transition patterns showed relative stability from one time point to the next with change appearing incrementally. Each individual class and the unique transition patterns that emerged are discussed at length along with child outcomes and implications for future study.

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CHAPTER I

INTRODUCTION

More than one in seven children in America have a mental, behavioral, or developmental disorder (Bitsko et al., 2016) costing the United States an estimated 247 billion dollars for services, lost productivity, and healthcare in 2007 (Eisenberg & Neighbors, 2007). Children and adolescents with disabilities are at greater risk to struggle in school and not develop the necessary socioemotional skills requisite to become independent, self-actualized members of society. The impact of disabilities not only affects the child but also the parents that care for them. Parents of a child with a disability report being more depressed, anxious, have lower marital and social relationship satisfaction than parents with typically developing children (Boyd, 2002; Eisenhower, 2005; Doron & Sharabany, 2013; Padden & James, 2017). If not addressed, these challenges can lead to increased stress and negative outcomes for families impacted by a child with a disability.

Given the potential for negative outcomes, research has focused on how to mitigate these outcomes and put families on a more positive trajectory. Among the research, there are studies that identify families that, despite considerable risk of negative outcomes, are able to continue to develop without major negative effects. Researchers have deemed these families "resilient" (Walsh, 2012). This body of research has shown that for these families to be resilient to the

stressors of having a child with a disability, they must utilize individual, family, and community resources to help them with day-to-day challenges as well as unexpected events. Research has shown that families that utilize these resources and adapt to challenges without negative effects, sometimes, emerge even stronger than their original state (Bayat, 2007; Marciano, Drasgow, & Carlson, 2015). To aid these families, understanding the impact of specific, individual, family, and community resources on these families is paramount to help improve outcomes.

Having a Child with a Disability

Parenting children, especially young children, is a stressful endeavor. That stress can be compounded when that child has a mental, behavioral, or developmental disorder. The research is replete with studies describing the increased burden that a child with a disability can put on the family system (Brehaut, Kohen et al. 2004; Mugno, Ruta, D'Arrigo, & Mazzone, 2007; Montes & Halterman 2008; Rao & Beidel 2009). These effects typically fall into three areas, the first of which is *individual effects*: having a child with a disability can have multiple psychological effects on the individuals within the family such as increased anxiety, depression, and burnout/fatigue in parents, as well as behavior problems in siblings. The second effect is *social*: this area focuses primarily on the impact of relationships between friends and family. Increased stress from having a child with a disability takes its toll on the marital relationship as well, affecting the family dynamics and activities (Mugno, Ruta et al. 2007; Doron & Sharabany 2013). Lastly, these impacts can affect the way that the family interacts with the *community,* or, the relationships between schools, churches, and child services and the family; many families in this situation isolate themselves from possible resources due to the increased stressors they face.

History of Disability in School

The origins of policies that we have today for accommodating children that have a disability shares its roots with the human rights movement. In 1954, the landmark Supreme Court ruling declared that segregation of blacks and whites in schools was unconstitutional. This ruling became the basis for more advocacy for those with disabilities in the school system. In 1975 only one in five

children with a disability was accommodated in public schools and an estimated one million children were barred from participating in schools. Of students with a disability that were allowed education, over three million were effectively segregated into different facilities where they received little to no effective teaching (Switzer, 2003). These injustices were addressed in the 1975 Education for All Handicapped Children Act. This act provides rights and services to individuals with a disability and their families. In 1990, it was updated as the Individuals with Disabilities Education Act (IDEA) clarifying aspects of the act and expanding the rights to parents in advocating for services for their children. Among some of those rights is the right to free appropriate education for all children, individualized education plans to accommodate their individual needs, and entitlement to education in the least restrictive environment. Parents of children with a disability were also granted a greater ability to be a part of their child's education and recourses to advocate for their children if these standards were not being met.

These advancements in the rights of families that have a child with a disability have ensured a better educational experience; however, many challenges still exist. Regulations put the responsibility on the parents; especially between the ages of 0-3 as they are required to get a diagnosis before they can get access to the resources they desperately need. The process of getting some diagnoses can take over 2 years and require multiple health professionals (Siklos & Kerns, 2007; Sansosti, Lavik & Sansosti, 2012). Some students may need extra attention or help that schools may not have the resources to provide (Hacıibrahimoğlu & Kargın, 2017). For families that have a child with a disability there is an even greater need to be connected to services that are offered at school and also make sure that their child is receiving the help they need to succeed. One of the greatest challenges is the importance for families to receive support during times of transition.

Challenges in Transitioning

Transitions are defined as the process of moving from one environment to another (Rous et al., 2007). These movements cause changes in family dynamics and routines for both children and the family. These challenges can often be stressful and require time to adapt and normalize (Rous et al.,

2007). Research has outlined some challenges that can disrupt the child and family transitions throughout early childhood. These changes can be intensified when a child has a disability.

Children from birth to three years old receiving support from the government belong in a program called early intervention. In early intervention children who have a delay or are at risk of having a delay receive services and education to ameliorate the effects of the delay. When transitioning from an early intervention setting or coming from a home setting, challenges can arise by the child not adapting to a more rules-based system in preschool/kindergarten setting. Typically developing children often struggle with this change in structure, when a child has a disability however, the challenges are more acute. Children may struggle with being stationary and paying attention to the lesson with students possibly becoming difficult for teachers to manage due to disruptive behaviors (Hacıibrahimoğlu & Kargın, 2017). Other challenges arise as the teacher of the class seeks to balance the capabilities of their students and the required classroom course curriculum. Without proper assistance, children with a disability risk academically falling behind their peers. Only 38.2% of students covered under the IDEA provision in the early childhood section spend the majority of their time (minimum 10 hours) inside a regular early childhood class, defined as having at least 50% of class without a disability (Department of Education, 2016).

For the parents, another obstacle comes from maintaining uninterrupted service when moving from one institution to another. Due to a lack of interinstitutional continuity, plans that worked in the previous institution are not known in the new school, causing a disruption in services (Rous et al., 2007). Oftentimes the onus falls on the parents to help bridge the gaps between institutions contributing further strain during a time of transition (Doron & Sharabany, 2013, Hacıibrahimoğlu & Kargın, 2017).

There are also interactive factors between parents and children. Whereas some parents accept the disability diagnosis and search for ways to get the child the resources necessary to help with their development, some parents do not accept the diagnosis and seek to downplay or ignore the symptoms.

This continues to add stress to the family and complicates the work that needs to be done between the school and the parents for the benefit of the child (Hacıibrahimoğlu & Kargın, 2017).

Statement of the Problem

Children with a disability and their families are at tremendous risk for social, emotional and economic turmoil if more is not done to understand how they can positively adapt to the challenges they face. There is ample research identifying negative outcomes that result from having a child with a disability (Mugno et al., 2007; Rao & Beidel 2009). While these studies do a good job describing the situation that families are in, there is little longitudinal research on these families; even fewer studies focus on key developmental transition times where stress and the need to adapt to it are at their highest. Developmentally, it is understood that individuals fluctuate and change over time; so too must our research and analyses adapt to capture these changes in these families if we are to truly understand these families and how to support their development through the lifecycle.

Purpose of the Study

The purpose of this exploratory study is threefold; first, identifying different latent groups of families that have a child with a disability according to access to different internal resources. Second, as these groups are identified, exploring the effects of different levels of support and resources has on their new group membership after a child transition into school. Lastly, child academic outcomes (language and literacy) will be tested analyzing the effects of the current state of the family and other resource covariates.

Exploring family differences and what happens after they go through the transition of having their child with a disability enter school is a positive step to address the gap in the family and disability literature. Furthermore, these findings could provide invaluable insight in not only what resources help families successfully make an early stage transition but also what under-prepared families can do to help facilitate a better transition into school, potentially avoiding significant negative social, emotional, and economic hardship. This study seeks to answer these questions: identify different groups of families and look at their transitions as their child with a disability enters school, identify

the effectiveness of different resources (internal, social, community) and analyze effects that positive family adaption has on children.

Significance of the Study

The significance of this study is its unique approach to the way we understand the role of resources in the transition process for families that have a child with a disability. Another important contribution pertains to the age ranges of both the child and parents. Early transitions are crucial in establishing positive adaption processes. Successful transitions may instill confidence, improve outcomes such as coping strategies and increased perceived efficacy in future transitions (Rosenkoetter, Hains, & Fowler, 1994). Families that have a child with a disability not only need to balance the needs of their child, but also maintain the family structure for the rest of the members. These stressors can be magnified during times of transition, such as having a child enter school. Numerous studies report negative outcomes for these families that struggle to adapt to these transitions across the lifespan (Brehaut, Kohen et al. 2004, Mugno, Ruta et al. 2007, Montes & Halterman 2008, Rao & Beidel 2009); far fewer studies talk about families that are resilient to the negative effects and how they adapt to the challenges they experience (Bayat, 2007; Marciano, Drasgow, & Carlson, 2015). These families are able to succeed due to both internal and external resources that they utilize during the stressful adaptation process. Rous et al. (2007) emphasized the importance of identifying these resources in the transition process when she said "identification of key dimensions of positive transition outcomes […] could assist administrators and providers in matching transition practices that hold the most promise for supporting the specific outcomes identified for individual programs, children, and families (p. 17)." This study addresses the need to better understand the transition process in order to improve outcomes for families that have a child with a disability.

Research Questions

Throughout the research design process, these three exploratory questions guided the current study:

1. While exploring the effects of internal, social and community resources that a family with a child diagnosed with a disability employs to maintain equilibrium, are there specific groups or classes of families that have similar characteristics in the sample?
2. If these groups exist within the sample, what factors (resources) have the greatest effect on the probability of belonging to a group after the child's transition into preschool? How do family states change during their adjustment phase to a normative stressor? Are there factors that have a greater influence on transition probabilities than others?
3. Does membership in these specific latent groups affect child academic outcomes when controlling for disability? Do parental internal resources have a potential effect on child outcomes?

CHAPTER II

LITERATURE REVIEW

The major purpose of this chapter is to elucidate the rationale for the longitudinal study of the family adaption process in families that have a child with a disability (CD families). This review is limited specifically to CD families through our proposed theoretical framework, the FAAR model. Throughout this chapter, we provide a theoretical framework for the study and a comprehensive review of three broad questions. First, what are the unique demands (stressors and strains) CD families face? Second, what are the adaptive capabilities (resources, coping) that CD families could employ to meet these demands? Lastly, what effect do meanings have on the family adaption process? The current chapter is broken down into 4 sections: (a) The FAAR model, (b) Demands, (c) Capabilities, (d) Meanings.

Theoretical Framework

The current study longitudinally examines these families in need of support to better understand the effects of internal and external resources during their adaptation process. The adaptation process occurs in multiple areas including the individual, family, and community levels. The Family Adjustment and Adaptation Response model (FAAR) is the primary lens through which the research questions were formulated and the results will be interpreted. In order to best understand the model, certain concepts and theoretical approaches will be discussed.

Family Stress Adaption Theory

The Family Stress Adaption Theory was developed by Ruben Hill as he studied the effects of deployment and reunion on families during World War II (Hill, 1949). While many other theorists were looking at families and their adaptive processes during difficult times, Hill's model was among the most widely known. The family stress adaption model, also known as the ABCX model breaks the adaptation process into four distinctive sections. The crisis, represented by "A" is a significant enough event to disrupt the family system. In order to buffer the negative effects of the stress from the crisis, the family uses both their resources "B" and perception of the problem "C" to adapt to the crisis. The outcome of the family or "X", represents the state of the family after the family utilizes their resources and perceptions, either the family adapts and copes with the crisis or continues in crisis.

One of the major theoretical additions came from use of the ABCX model in other projects. Hamilton McCubbin, who was studying families in the military system (McCubbin, Dahl, & Hunter, 1976). His studies showed that after the initial crisis and outcome of the ABCX model, the ongoing effects of the ABCX model and how unresolved stressors in the X phase tended to "pile-up" and lead to further crises in the future. Incorporating the process over time, McCubbin and Patterson (1983) developed the double ABCX model using the ABCX model as a foundation.

Connection between ABCX and FAAR Models

The FAAR model shares many similarities with the double ABCX model though it focuses primarily on the process on the family system and its attempts to maintain balanced functioning or equilibrium. The model is broken down into two phases, the adjustment phase and the adaption phase. In the adjustment phase, families have various demands placed on them every day ranging from internal tensions between family members to external stressors like work or paying bills. If the family does not adjust to these demands they can become unbalanced which can lead to negative outcomes or even dissolution of the family system. In order to counterbalance these demands, families employ the use of different capabilities, either within the

individual members of the family or resources available to them to reestablish the equilibrium again. This balance is mediated by the meanings that the family attributes to the different demands they have on themselves and the capabilities they have to meet those demands. The second phase or adaptation phase proceeds from a crisis in the family system. Crises occur when the intensity or quantity of the demands placed on the family exceed the capabilities that the family currently possesses. The result of the crisis is a state of disequilibrium of the family system. In the adaptation phase families must regain a state of equilibrium within the family system. This can be done by changing the different sides of the scale. Families can either decrease the amount of demands on the family, acquire new capabilities or resources to meet the demands or change the meanings attributed to the demands and/or capabilities the family has (Patterson, 1988). Other aspects of the FARR model are discussed in further detail below in the literature review.

Risk and Adaption

The FAAR model follows the process of adjusting to normative demands placed on the family and how the family adapts once a crisis as disrupted the environment and requires change. For decades, researchers have been studying what makes children more successful when their environment necessitates a change. Research on this process began in 1970 as researchers sought to understand how, when faced with similar hardships, some children adapted poorly to a situation and in some cases, a few children appeared unaffected when faced with the same challenge. Over the past 40 years, research on risk and resilience has continued to grow and change how we look at and study transitions (Wright, Masten, & Narayan, 2013). Out of this research, families have been studied as well as individuals. Family adaptation focuses on the family's ability to maintain function in the face of significant adversity.

In order to have a positive or negative adaptation in families, there must be significant risk (Masten & Coatsworth, 1998). Risk is broadly defined as anything that leaves the individual or family vulnerable to negative outcomes; this can be seen as poverty, substance abuse, or a chronic

illness in a family member. Along with risks, there are numerous skills, attributes or processes that individuals and families have that can help families adapt to difficult situations. When they are used in a risk situation, these are deemed protective factors. If the family is not able to find resources to adapt positively, they may adopt maladaptive patterns to compensate for the demand that they face or dissolve (Hawley & DeHaan, 1996). So the process of adaptation can be seen as families using their skills, abilities and resources (protective factors) to help them adapt to the unique demands that are placed on families that threaten their normal development (risks).

Family Adjustment and Adaptation Response Model (FAAR)

The FAAR model was constructed using the ABCX family stress model. The goal of the FAAR model has been to focus on the process that families follow to adapt and regain equilibrium after a crisis situation (Patterson, 1988). Within this model there are two phases, the adjustment phase and the adaptation phase. In the adjustment phase the family is constantly balancing the demands that have been placed upon them with the resources and capabilities they possess. In addition to this balance, families also have meanings that they ascribe to themselves as a unit and also the situations that they find themselves in, these perceptions interact with the demands and capabilities that the family has. If balance cannot be achieved between these demands and the capabilities of the family, a crisis ensues, that is the beginning of the adjustment phase. In the adjustment phase, the family must regain equilibrium by lowering their demands, increasing their capabilities and/or changing their meanings (Patterson, 2002).

Demands

Demands are defined as something that calls for change in the family system (Patterson, 1988). In discussing demands, Patterson (2002) emphasizes two major types of family demands: stressors and strains. These different demands will be outlined below including unique challenges that families that have a child with a disability diagnosis face at the time of diagnosis and also in the future as a result of the diagnosis.

Stressors. Stressors are life events that occur that can cause change (positive or negative) in a family system. These stressors can be broken down into two different types, normative and nonnormative stressors. Normative stressors occur regularly throughout the family life cycle (marriage, birth of a child, adolescence etc.); nonnormative stressors are unexpected events such as a natural disaster or a child receiving a diagnosis of a mental illness (Patterson, 2000). Nonnormative stressors typically put added strain on the family requiring them to adapt to the unexpected change.

For families that have a child with a disability there are many unique challenges they face. The diagnosis constitutes an unexpected nonnormative stressor while the transition of integrating the child into the school system would fall under a normative stressor. As with all stressors, the family must adapt in conjunction with other stressors that may already be present to maintain equilibrium, some of these stressors are outlined below.

Trouble with a Diagnosis. For most parents and families, the events leading up to a diagnosis can be challenging. Studies have shown that on average, there is over a two year lag from the child displaying symptoms of a developmental disability to receiving a diagnosis. This lag was even more pronounced for African American and mixed-racial families (Siklos & Kerns, 2007; Sansosti, Lavik & Sansosti, 2012). Often times, families must consult multiple professionals before obtaining a diagnosis for their child, families on average go through four to five clinicians before achieving a diagnosis (Goin-Kochel, Mackintosh, and Myers, 2006; Siklos & Kerns, 2007). Families also report that concerns of various developmental disorders were often met with a "wait and see" approach (Sansosti et al., 2012). This approach by doctors can be a source of great frustration and stress especially with recent studies showing significant success in early intervention treatment for mitigating developmental delays in children under three years of age who have been diagnosed with a developmental disorder (Corsello, 2005).

Atypical Child Behavior. Challenging behavior by the child diagnosed with a disability can be another contributor of stress within the family. Atypical behavior often can take the form of

hitting, kicking, biting, grabbing, shoving, and throwing things (Tiger, Fisher, Toussaint, & Kodak, 2009). Aggressive anti-social behaviors can limit the flexibility that the family needs to adapt to daily challenges. Fear of negative reactions to atypical behavior in public can contribute to the family not searching out community resources (Higgins, Bailey, & Pearce, 2005). Management of these behaviors in children with a disability is strongly associated with parental stress, both to the parents individually and as a couple due to the constant demand on the parent's attention (Lecavalier, Leone, & Wiltz, 2006).

Financial Pressure. The need to adapt to an unknown event such as having a child with a disability extends to the finances of the family as well. The diagnosis has both short and long term effects. Parents report that the financial burden is especially high in the months immediately following the diagnosis and is mainly attributed to the cost of early intervention (Sharpe & Baker, 2007). Long term financial pressures also must be taken into account. The majority of financial strains on the family come from unique needs for the diagnosed child. Ongoing therapy and education programs account for over half of the extra expenses reported by parents (Järbrink, Fombonne, & Knapp, 2003). In addition to the cost of caring for a child with a moderate to severe disability, loss of income as a result of a parent quitting their job to be able to care for the child is an issue (Järbrink, et al., 2003).

Mental health professionals seeking to offer the best help to these unique families must understand the position each family faces not only at the time of diagnosis but also the months before and following the diagnosis. Validating concerns that parents have while being able to offer those resources and information to aid in their adjustment to new and existing stressors is vital in promoting positive adaptation in families.

Strains. Strains are either implicit or explicit desires to change something held by different members within the family (Patterson, 2002). Unlike stressors these demands are already present within the family system (Patterson, 1988). Strains can take the form of an unresolved issue left over from a previous stressor or previous stressors that cannot be resolved completely. Different

roles and unmet expectations can cause strain on a family. This could be a result of differences with parenting practices or family rituals (Patterson, 1988). Maladaptive patterns that may stabilize the family system temporarily (e.g. substance abuse or parentification of children) could be a major strain on the system and lead to a possible crisis in the future. These different strains can occur with individuals or different subsystems within a family.

Individual Strains. Studies have shown that mothers are particularly affected by having a child diagnosed with a developmental disability such as autism. 78.7% of mothers reported clinically significant levels of depression and on average up to 1.4 years after diagnosis (Taylor & Warren, 2012). While we know that these stressors and strains have long-term effects on individuals and the family, longitudinal research is scarce. In addition to depression mothers also have shown decreased levels of self-efficacy and increased guilt (Kuhn & Carter, 2006). These feelings of guilt could stem from erroneous early reports that early diagnoses of some developmental disabilities were linked to mother emotional responsiveness or exposure to harmful teratogens in utero causing the disability. These protracted individual strains not only unbalance the family system but they also can erode possible individual resources like hope and empowerment.

Parental Dyad Strain. The most common finding in families that have a child with disability is that they experience a significantly greater amount of stress than families without such a child, this is especially true for the parents which must shoulder the responsibility of providing care and financial support to their diagnosed child (Eddy & Walker, 1999; Higgins et al., 2005). Differences also exist between different disabilities. Mothers that have children diagnosed with autism report lower marital satisfaction than mothers that have children with other developmental disabilities (Rodrigue, 1990). This decrease in marital satisfaction could stem from the lack of time together due to the increased demand on the time of the parents to care for a child with a disability. Fathers are much less studied than mothers in the research; this is a result of the availability of mothers in research as well as their place as the gatekeeper to the child with a disability (Crnic, Pedersen, Baker, & Blacher, 2009). However, the father experiences similar

stress and strains of balancing life demands with the challenges that their child presents. Early research on fathers showed they could be more affected by environmental stressors than their partners (Krishnakumar & Buehler, 2000).

Strain on Siblings. The strains that siblings of a child diagnosed with a disability experience are a relatively unexplored area of study. These children have a unique experience that separates them from siblings in typical families (Smith & Elder, 2010). Dynamics between siblings and also between parent and child remain a promising avenue of study. In a study, Mascha and Boucher (2006) find that the perceptions and experiences of the siblings of a child diagnosed with a developmental disability can be negative especially regarding negative behaviors (physical aggression, disruptive outbursts, destruction of property etc.). Due to the increased demand on time and attention that the child with a disability demands from the parents, siblings must adapt to less attention from their parents. By understanding what the sibling experience is surrounding family dynamics there is great potential to improving outcomes and adaption in these siblings.

Capabilities

To counterbalance the demands on the system, the family mobilizes capabilities to meet the demands on the family. These capabilities are divided into two different categories, resources which the family has and coping behaviors which the family actively does to cope with stress.

Resources. When analyzing resources, there are myriad of different resources available to help meet demand. Within the FAAR model, three categories are used (Patterson, 1988). The first category is personal resources, which are the abilities held by each member in the family system. These resources range from personal intelligence and personality traits to self-esteem. The second type of resource is family resources. These resources regard the cohesion (family unity), adaptability (flexibility in meeting demands), organization (appropriate roles, rules and boundaries) and communication (coordination and congruency). Lastly, community resources consist of groups outside the family system (church, school, government programs, etc.) that the

family utilizes to meet demands (Patterson, 1988). Each group will be designated into internal (within the group) and external (outside the group) resources

Individual Resources

While individual resource research remains scarce, there have been studies that have highlighted deficits that the family faces when a child with a disability is involved. Both internal and external resources are discussed.

Internal resources.

Empowerment. Another understudied individual resource is the concept of empowerment in a family system. Empowerment, simply defined is the confidence in one's ability to accomplish something. While the key elements of empowerment are still underdeveloped in the literature (Trivette, Dunst, Hamby, & LaPointe, 1996), there is promise for research centered on empowerment in CD families. Nachshen and Minnes (2005) found that when comparing CD families with non CD families, while CD families reported lower outcomes (stress, decreased wellbeing, and behavior problems) levels of empowerment did not significantly differ between groups. A study showed that empowerment was one of the strongest predictors on maternal health of mothers in CD families (Bourke-Taylor, Pallant, Law, & Howie, 2012).

Education. Higher education is linked with many positive outcomes including higher income, improved child outcomes and lower instances of parental disability in older age (Noble et al., 2015, Thorpe, Szanton, Bell, & Whitfield, 2013). The benefits of higher parental education continue into the disability literature. Exploratory studies have shown that parents with higher education tend to attain a diagnosis for their child earlier than families with parents that have lower levels of education (Goin-Kochel et al., 2006). Parental education has also been shown to affect the different types of therapies chosen and also therapy dependence over time (Rackauskaite, Uldall, Bech & Østergaard, 2015).

External resources.

Housing and transportation needs. Many of these studies have illustrated the disability diagnosis itself is not the cause for the decline of individual resources but the restrictions that it places on family members making it hard to access external resources (Mugno et al., 2007). Families report that the resources that they need are often insufficient for their situation or unavailable altogether (Riebschleger, Sosulski, & Day, 2010). This lack of support can lead to loss of employment and income spilling over into insufficient housing and transportation needs. In addition to financial restrictions, studies have shown that physical activity and the amount of social relationships are lower in these families contributing to lower life satisfaction (Mugno et al., 2007).

Family Resources

Understanding family resources is a promising area of intervention for mental health professionals. Improving the access and utilization of pre-existing resources or nurturing positive resources to aid in future family adaption can be a major step forward in the role of helping families that have children with a disability.

Internal resources. Families often have resources within their relationships that can act as buffers against stress and dysfunction. Among the most helpful resources that families with a child that has a disability is the cohesion within close family. Families that displayed positive adaption reported that social support within immediate and extended family was key in adapting (Twoy, Connolly, & Novak, 2007). Clear and congruent communication is a hallmark of family functioning. Often times the family's ability to discuss stressors and concerns with each other is a valuable family resource (Walsh, 2012).

External resources. Cultural and family rituals can also be resources, families of various diverse backgrounds showed that maintained connection to family and cultural and spiritual roots tended to adapt better to changes in family life (Falicov, 2007). Another external resource, respite care, has been seen as a potential external resource for families. Respite care provides time for parents to focus on non-caregiving responsibilities in hopes of lowering risk of decreased outcomes for

the child with a disability (Hoare, Harris, Jackson, & Kerley, 1998). Research on the efficacy of respite care for families that have a child with a disability is scant but preliminary indicates that parents actually received limited respite (Neufeld, Query, & Drummond, 2001) and that if the underlying distress is not addressed in the parent that respite care benefits are limited (Hoare et al., 1998). Further research is needed to improve respite services to CD families.

Community Resources

For most families, the services and programs offered varies widely depending on where the family lives. Most of the resources outside the home were the school and case managers with the peak range in services being utilized between ages 5 and 8 (Thomas, Ellis, McLaurin, Daniels, & Morrissey, 2007). Parents of children with a developmental disability report that other parents that have a child with a similar disability were the most frequent source of support and information (Mackintosh, Myers, & Goin-Kochel, 2006). Unfortunately, the trend of lower income and ethnically diverse families receiving fewer community supports and information is prevalent in the community and services research (Mackintosh et al., 2006).

Coping Behaviors

These behaviors can be best defined as actions taken to help maintain or gain equilibrium in the family system. Coping behaviors can be seen as direct action to acquire resources to help the family or maintain resources that the family already has. Other behaviors can reduce the demands on the family such as finding an afterschool program for a child or a nursing home for a grandparent with special needs. Families can also manage strains between members of the family in order to maintain healthy communication and increase cohesiveness. Lastly, coping behaviors can center on individuals and families reflecting on the meanings attached to the different stressors or strains present within the family, this reflection is a precursor to addressing the meanings that the family as a whole associates with the various challenges it faces (Patterson, 1988).

Families that experience the stress and strain of helping a child with a disability cope in a variety of positive and negative ways. The goal of mental health professionals should be to identify and nurture positive coping behaviors while helping the family to minimize maladaptive behaviors. Clinicians and other helping professionals should be mindful of distancing and escape strategies in parents. The tendency to separate and distance from other resources and family members is common in CD families, even more so if the child has a disability that is associated with behavioral problems (Sivberg, 2002). A positive strategy that has been successful in promoting adaption in these families is the active acquisition of social support from family, friends, and the community (Luther, Canham, & Cureton, 2005). Reframing, or looking at the meanings ascribed to a current situation is another strong coping behavior tied to better outcomes (Bayat, 2007).

Meanings

As discussed previously, in the FAAR model, families are continually adjusting to the demands placed on them with capabilities that they possess. During the process of balancing stressors and capabilities, Patterson (2002) talks about meanings, or the way that the family perceives the demands that they face (situational). The FAAR model also includes the way that the family perceives itself (family identity) and also how they view their family as a system as a part of society (worldview) in its definition of meanings.

Perception of the event. The way that a family perceives an event such as a child entering the school system for the first time can influence the entire adjustment process (Patterson, 1988). Positive thought processes and meaning making around the both expected and unexpected events have been correlated with increased adaption and lower stress levels in families (Bayat, 2007; Pakenham, Sofronoff & Samios, 2004). Positive meaning making centered on religious views have also encouraged positive adaption in families (Tarakeshwar & Pargament, 2001).

Perceived support. The way parents perceive the external support from their friends, family, community, and professional support agencies can have powerful potential benefits for

CD families. Perceived support is associated with psychosocial and physical health (Gallagher & Whiteley, 2012).In some cases, the way that parents perceive a situation and the support they are receiving can have a greater effect on parental well-being than child behaviors or challenges (Falk, Norris, & Quinn, 2014). These findings stress the importance of not only finding support for physical needs for CD families but also psychological support as well, especially for families with a severe disability (Ekhlas & Long, 2013).

Family Identity & Worldview. Many of the individual perceptions and interactional patters within the family system can contribute the overall schema that the family fits into (Patterson, 1998). Often, families begin to disintegrate as they may believe that they are broken and lack the competency to function as a family unit (Walsh, 2012). The way that the family sees themselves (family identity) and the way that it views itself in the context of the greater community (worldview), changes the way that families interact with their daily stressors strains. Positive views of self-efficacy and capacity to care for the child with a disability correlated positively with well-being in parents with a child with ASD, especially mothers (Kuhn & Carter, 2006).

Another important factor in studying positive adaptation in families is to integrate the importance of family functioning over time and through different stages of the family life cycle (Hawley, & DeHaan, 1996). Studies show that resilient families were able to mobilize their resources both inside and outside of the family to adapt to demands put on them, this process changes as families progress through the family life cycle (McCubbin & McCubbin, 1988).

The influence of positive adaptation in families and individuals within the family is bi-directional. The bi-directionality of family and individual adaptation suggests that by improving family adaptation we can also develop an additional resource for individuals within that system (McCubbin & McCubbin, 1993). Studies have shown that relationships within the family can be a powerful protective factor against negative outcomes and those individuals can be resources in the family to aid in family adjustment (Conger & Conger, 2002). As we expand our knowledge of

individuals as resources to promote family positive adaptation, we must also look at the family as possible risk factors also. While most of the research regarding families with a child diagnosed with a disability has taken a deficit-focus, family research offers valuable insight using a strengths-based approach (Patterson, 2002). Recent studies have also shown those families that have exhibited positive adaptation after the initial diagnosis of a disability in a child have made positive meanings of the disability, and have grown more connected as a family (Bayat, 2007).

In conclusion, this chapter was created to address three broad questions: what are the unique demands (stressors and strains) CD families face? What are the adaptive capabilities (resources, coping) that CD families could employ to meet these demands? And what effect do meanings have on the family adaption process. This was presented through the lens of the FAAR model. Lastly, rationale is made positing that a key to improving the outcomes in families that have children with disability is through understanding the unique challenges that these families face and the process that they use to adapt to these situations (FAAR model). By encouraging positive processes that lead to positive adaptation clinicians, counselors and educators can increase positive family outcomes and the potential for families to emerge from adversity stronger than before (Walsh, 2012).

Child Outcomes

While the primary focus of the current study is on how parents' empowerment and perceived support changes as their child transitions to preschool. As discussed in the above literature review there are clear indicators that poor adaptation for the parents translates to poorer transitions for children. Within the NECTC dataset, three major child outcomes were found and utilized in the current study. These represent primarily academic outcomes which are linked to social skills crucial for future transitions in the school environment (Rosenkoetter, Schroeder, Rous, Hains, Shaw, & McCormic, 2009).

Emergent literacy. Learning to read is a key component to the academic and social development of children. It is often broken down into two different components, comprehending the words on

the page and how to orally produce the words (Gough & Tummer, 1986). Studies have shown individuals with certain developmental disabilities may excel at certain aspects while struggling in others (Westerveld et al., 2017). The emerging literacy measure (ELM) is an adapted measure that seeks to measure the ability of the reader to be able to locate different areas of a book and in what order words are supposed to be read on a page. Validation and scoring of the ELM is contained in the methods section.

Expressive language. Whereas emergent literacy measures the ability of the individual to read and speak the words around them, expressive language focuses on the practical application of language to facilitate interaction with the world (Roid & Sampers, 2004). Expressive language is related to the social skills necessary to interact in class and convey needs and wants in the family.

Receptive vocabulary. The area of receptive vocabulary focuses the ability of individuals to take words verbally given to them and make meaning of them. Categories like verbs or nouns can be used to evaluate understanding. The Peabody picture vocabulary test (PPVT) is a standardized test addressing receptive vocabulary knowledge. The test administrator gives a vocabulary word verbally and requests that the child indicate what word they gave by pointing to the corresponding picture among three other pictures. This measure is very useful when measuring academic understanding in which the student is non-verbal (Loveall, Channell, Phillips, Abbeduto, & Conners, 2016).

CHAPTER III

METHODS

The review of the literature on families that have a child with a disability (CD families) emphasized the importance access to resources has on stress and the adaption process of families, especially during times of transition. However, few studies show the way those resources interact with the overall state of the family and its influence on the child. The primary goal of this exploratory study is to answer these research questions surrounding families that have a child with a disability. This chapter will discuss the research design, population and sample, data collection procedures, instrumentation used and the plan for data analysis.

To test the research questions, a secondary data analysis of the National Early Childhood Transition Center (NECTC) study will be used. The study is a multi-state longitudinal design on children transitioning from early intervention services until entrance into kindergarten. A Latent Transition Analysis will be used through mplus 8. Our goal is to assess current "states" of families and if groups can be perceived according to their access to various individual, family, and professional resources. If groups are found, using multinomial logistic regression, we will look at the odds of families changing from one group to other depending on their access to resources. Finally, we will assess the effect membership in a specific resource group has on the expressive language and academic success of the child. It is hypothesized groups will be found access to resources will have a significant benefit to family adaption and child's language and

academic scores.

Population and Sampling Procedure

Information about the population was gathered from reports provided from NECTC (McCormick et al., 2011). The population consisted of children ages three to kindergarten age from five states (Kentucky, Louisiana, Michigan, Oregon, and Wisconsin). No control group was gathered, instead, the sample was a subset of two waves from the larger dataset. Different programs and providers were contacted in each state with 359 agreeing to participate (response rate of 34.8%). Exclusion criteria for the programs included: programs serving less than 10 children and programs with missing stratification data. Using the first two waves of data factoring in missing data, 242 families were used in the study.

Child and family participants were selected in the individual programs using a stratified random sampling method according to race and community size (urban/rural). No more than 20% of any racial group was drawn per program unless that number was less than one child. Inclusion criteria for individuals required that the child must have a diagnosed disability and be receiving government services at the time of first wave. Exclusion criteria for individuals included: in wave one children who did not receive at least one early intervention service by a service provider and in wave three children whose birthday occurred before the state-set cutoff for kindergarten. In order to counteract attrition, coordinators returned to the original pool of students to replenish the sample as needed.

Disability. All children must have had a disability to be included in the study, diagnoses ranged from speech disabilities and delays to intellectual and developmental disabilities such as cerebral palsy, autism spectrum disorder and Down syndrome. To help with minimum sample sizes 4 groups were created, developmental disability, speech, unknown and other diagnoses. Developmental disability is an umbrella term to cover diagnoses that pertain to the developmental, intellectual and adaptive limitations of an individual. These diagnoses included but are not limited to autism spectrum disorder, Down syndrome, fetal alcohol syndrome, and

cerebral palsy. Speech disorders were the highest single reported disorder and allotted a group by itself. The "other diagnosis" designation included diagnoses that didn't entirely fit either speech or developmental categories or were too general to tease out a classification. Individuals in this group reported diagnoses such as microcephaly, epilepsy, and seizures. While a diagnosis was necessary to participate in the study, not all disabilities were reported by parents. 31.8% of participants had parents that did not indicate the diagnosis. These participants are included in the study and labeled as an "unknown diagnosis" when comparing with other diagnosis categories.

Instrumentation

Different measures were used to evaluate child, parent and family variables. Measurements were researched and chosen to address the complexity and differences of early intervention programs between the five different states and the diversity present in the data population. Descriptions of assessments were outlined according to NECTC report (McCormick et al., 2011).

Child-Level Measurements

Emergent Literacy Measure (ELM)

The ELM is modification of the story and print concepts task in the Family and Child Experiences Survey (FACES) (United States Department of, Human Services, 2017). NECTC made modifications in order to make it more accessible to a wider range of students including younger children and those that may have a disability. Concepts of book orientations, page turning, identification of letters, left-to-right readings, identification of different locations on a book (front/back etc.) and meaning conveyed by print were among the items added. The test was administered by an adult to the child, often in the child's house. The adult shows the child a colorful picture book and guides them through it while asking 23 specific questions. The child's responses could be given either verbally or non-verbally. After the test was administered, a raw score between 0 (low) and 16 (high) was given based on the criteria accomplished. A "mercy

rule" was instituted for students that got were unresponsive or lacked the requisite attention span to complete the tasks.

Merrill Palmer Scales of Development – Revised (MP-R)

The MP-R is a child-specific scale measuring the typical and atypical development of cognitive, language, and motor skills in children between 0 and 6 years of age. The use of the MP-R has shown to be a valid and reliable measure in child development for both typical and atypical developing children (Roid & Sampers, 2004). For this study an examiner scale was used. The MP-R is broken down into 4 main scale areas: Cognitive scales, gross motor development, parent report scales and examiner scales. In the examiner's scales, social-emotional problem indicators and expressive language was evaluated. Only the expressive language variable was provided over multiple waves making it the only variable used in this study. Administration of the test is hand on using toys, pictures, and puzzles to engage the child. The test ranges from 40-60 minutes depending on the age and ability of the child. The MP-R was normed on roughly 1,400 children within the 0-6 year age range. The sample is representative of the 2000 U.S. census proportions across two genders, five ethnic groupings, three levels of parental education, and four U.S. geographic regions.

Peabody Picture Vocabulary Test (PPVT)

The PPVT is a standardized test that assesses the receptive language of children, or, the ability to receive, translate, and use verbal information in the environment. The third version or the PPVT III was used to incorporate the possibility of a child not being able to complete the test due to physical disability or social/emotional delays (Dunn & Dunn, 1997). In the event that a child could not complete the test, a parent/professional report was used. The assessment is given by an examiner who holds up four pictures and asks the student to select a requested item which is in one of the four pictures. Scores are reported on age-based standard scores ranging from 40-160. The test was available in both English and Spanish. The PPVT III has been normed using a

stratified national sample and validated with various ethnicities (Campbell, Bell, & Keith, 2001) and different developmental disabilities (Condouris, Meyer, & Tager-Flusberg, 2003).

Parent-Level Measurements

Family Support Scale (FSS)

The FSS is an 18 item self-report questionnaire measuring parental perceptions of the helpfulness of available sources of support for caring for their child (Dunst, Jenkins, & Trivette, 1984). Scores were elicited with the question "how helpful have these sources been to your family in the past 3-6 months?" Sources of support were then assessed in a five-point Likert scale format with 0 meaning "not at all helpful" to 4 meaning "extremely helpful". Sources of support were assigned into four distinct subscales: *Familial* (3 items: own relatives/kin, own parents, own children), *Spousal* (3 items: spouse/partner, spouse's/partners parents, spouse's/partner's relatives/kin), *Social* (7 items: friends, spouse's/partner's friends, other parents, church, social groups, parent groups, co-workers), *Professional* (5 items: early intervention programs, professional helpers, family/child's physician, professional agencies, school/day care centers). Scores were calculated by summing up scores from each subscale with 8 scores ranging from 0 to 32 (social subscale). Total satisfaction could also be gathered by summing up all four subscales with scores ranging from 0 to 72 with 0 meaning no satisfaction of support and 72 meaning high satisfaction of support. The FSS was shown to be reliable on a sample of 139 parents of children with a disability (alpha = .85) (Dunst, et al., 1984).

Family Empowerment Scale (FES)

There are 3 levels empowerment, the first area is family and the parent's perceived ability to handle everyday situation within the family. The next level is service system which covers the ability to work with the social service systems in order to help secure need resources for their child. Lastly, there is community/political area encompassing self-perceived advocacy and involvement at a community/governmental level for their child. This empowerment may manifest itself it many different areas. The first area is the parent's internal beliefs or attitudes, the second

level involves the knowledge and understanding of the family/community/political environment, and the third area revolves around behaviors, or what is actually done in response to the other areas.

The FES is a 34 item self-report scale developed to assess parent/caregiver perceptions about their roles in their family and service systems surrounding their child as well as a political/community advocate for their child (Koren, DeChillo, & Friesen, 1992). For each of the 34 questions, respondents are asked to respond on a scale of 0 to 4 (0 = not true at all; 1= mostly true; 2 = somewhat true; 3 = mostly true; 4 = very true). Subscales are divided into family, service system, and community/political. Scores are calculated by a summation of each subscale with 10 being the lowest (community/political subscale) and a maximum score of 60 (service system subscale). The FES has been tested and validated on different populations including 440 parents of children with emotional or behavioral disorders. Internal consistency was good with a Cronbach's alpha of between .87 and .88 across all three subscales. Test retest reliability was also shown (N=107) with Pearson correlations between .77 and .85.

Data Collection

Data collection was performed by the National Early Childhood Transition Center (NECTC) on children with a disability and their families. Funds were provided through the office of special education programs within the department of education of the United States. The goal of the project was encompassed in 4 major parts. The first focus was creating an exhaustive database on the transition research on children with a disability and their families transitioning in school. Over 50 articles between 1990-2006 were found ranging from experimental to descriptive studies studying families from the United States and multiple other countries. Major trends in the literature showed that the better the transition of the child went, the better the academic outcome was. Furthermore, the importance of developmentally appropriate classrooms with involved teachers present before and after the transition was crucial to improved outcomes. Findings on families showed that many ecological factors were present during the transition and that

improved transition practices from one place to another led to improved outcomes for not only the families but the children as well. Other findings showed that the transition process is a complex one and that the more the parents felt competent and involved the better the transition went. Lastly, the literature showed that in order for families to help the child transition, their needs needed to be met first (Rosenkoetter et al., 2009).

Building on focus one, focus two proceeded to empirically validate some of the successful practices found in the literature. Instruments were designed to measure these transitions from 2003-2007 (McCormick et al., 2011). Five states (Kentucky, Louisiana, Michigan, Oregon, and Wisconsin) participated in the study. Children ranged from three to six years of age and were tested over four time periods: 1) after early intervention services, 2) after entering preschool, 3) graduating preschool, and 4) after entering kindergarten. Another cohort of children was gathered as a longitudinal sample, these children were studied at similar intervals as the previous cohorts. Transition from early intervention services occurred at age three for Kentucky, Louisiana, Michigan, and Wisconsin with Oregon transitioning out of early intervention services at age five per Oregon state program policy.

The study sample was constructed as a representative stratified random sample. States were selected using purposeful sampling (Patton, 1990) in an effort to maximize diversity in region, size, population density, and minority membership while still maintaining similar early intervention delivery (McCormick et al., 2011). In the participating states, different service agencies were selected to disseminate demographic surveys. Agencies were selected as long as they met the selection criteria which included that they: 1) served at least 10 children in their program, and 2) did not have missing data for stratified variables for community location (urban or rural) and race (African American, Hispanic, Native American, Asian/Pacific Islander, or Anglo-European). Because children were selected by agency, all participating children received early intervention services. After demographic data were gathered, five children were selected per agency until a representative sample was achieved. Children and their families were administered

the selected measures detailed earlier in the chapter. As different waves were being gathered different challenges arose, low initial participant participation along with different attrition events such as hurricane Katrina in 2005 prompted increased sample gathering to maintain statistical power for analyses that would be referenced in the third and fourth part of the program. For the third and fourth part of the program findings were disseminated seeking to inform institutions of valid transition practices and strategies, particularly for culturally diverse families (McCormick et al., 2011).

Data Analysis

In the present study, we will study an important transition process of families that have a child with a disability (CD families). To answer the aforementioned research questions we will analyze the data in four steps. First, we will evaluate the prevalence of two internal parent resources, empowerment and perceived support. From those prevalence numbers, we will identify latent groups or states within the population. Afterwards, we will determine probabilities of being in different groups based on various controlling variables. Finally, we will observe the likelihood of different latent family groups changing to another state after a family transition and its effect on the child's academic success. To accomplish this, various latent models will be utilized.

Latent Variable Models. One of the primary challenges of behavioral science is the difficulty of measuring different concepts or theories that are not directly observable. Latent variables are concepts that explain the relationship between several different observable indicators. For example, a physician may look for different observable symptoms (indicators) in a patient in order to diagnose an unobservable overarching illness (latent variable) that explains the confluence of the observable symptoms. With these latent variables, the relationship between the different indicators no longer holds making them independent of each other.

Using a latent variable framework offers considerable flexibility when conceptualizing latent variables, both latent variables and the associated indicators can be either continuous or

categorical based on the approach taken. This flexibility opens a multitude of different options when modeling complex questions using cross-sectional or longitudinal data.

Mixture Modeling. Mixture modeling is subset of structural equation modeling that encompasses probabilistic analyses seeking to locate latent subpopulations within the data (Muthén, 2008). One type of mixture model is the latent class analysis (LCA). This analysis focuses on identifying different latent categorical groups or classes within a population. LCAs are regarded as a person-oriented analysis (Collins & Lanza, 2010). Because of the categorical nature of the analysis, instead of using regressions on the data, the LCA compiles the responses of each indicator and places the responses on a matrix, from there; patterns in the responses are analyzed looking for groups of people that responded similarly based on the indicators in the model. The appropriate number of groups is chosen using a mixture of statistical indicators, interpretation by the researchers, and model parsimony (Collins & Lanza, 2010).

Covariates can be added to the model to predict possible class membership as well as explain variance within classes. These covariates can be either numeric or categorical in nature and are estimated via multinomial logistic regression (Collins & Lanza, 2010).

Latent Transition Analysis. Latent transition models (LTA) build upon LCAs in that LTAs allows dynamic change between classes over time (Collins & Wugalter, 1992).This ability for people to change across multiple timepoints has led to latent classes often being called latent statuses in the literature (Collins & Lanza, 2010). In using an LTA a longitudinal approach to this was chosen due to focus of the study to measure changes over time across multiple time points. The transition between early intervention services and preschool is also considered a policy-dictated definitive event acting as the difference between time points, thus the focus on states in time one and two and not maturation effects or gradual change.

Covariates have similar uses as in the previous LCA model, however in the LTA models covariates may predict transitions between classes between different time points. The process of predicting these transitions is considerably more complicated than the earlier LCA models. Due

to the results being dependent on the previous state, separate multinomial regressions are required for each row of the transition probability matrix (Collins & Lanza, 2010). Odds ratios from the results are then interpreted and reported.

Plan of Analysis

Due to the complexity of the present study, a model building approach will be used. Model building is when a researcher works with the data in their theoretical model in multiple steps as opposed to running the entire model first. This stepwise approach offers unique benefits to help isolate potential problems in the model and strengthen the model as a whole. If a problem were to arise during the analysis, the researcher knows what area of the model needs attention. After the problem is addressed both theoretically and statistically, the original model is reassessed and the researcher must determine of the changes made call for a respecification of the current model before continuing. The current study will employ five steps to analyze the model.

LCA on pre-transition states. Our first step is to identify patterns in the response data for the first wave of data, or the pre-transition wave. While the process is discussed earlier in the chapter, the purpose is to find how many different groups of families exhibit a similar response pattern (states). These data describe the families that we will be analyzing and acts as our baseline for our post-transition states.

In this study, our latent groups will consist of 7 indicators. Using the 3 subscales of the Family Empowerment Scale (family, service system, and community) and 4 subscales of the Family Support Scale (family, spousal, social, and community) we will use the LCA to evaluate the response matrixes of each family and delineate predominate states between families. For example, are there families that have high empowerment but low reported resources? Are there families that only report having access to close family support but not community support?

LCA on post-transition states. The second step is similar to the previous step. We will identify the number of groups present in the data as well as predominant states within the population. This step also tests an assumption of latent transition models in that LTA models assume group

invariance across time points, or, that the same groups that are present in the pre-transition states are the same in the post-transition ones.

Introducing transition into the model. After confirming measurement invariance between the pre and post states, the transition will be introduced bridging the two states. This addresses some of the core questions that we have in the study, mainly, what happens to families after a major family transition? Similar to LCAs, LTAs are evaluated through probabilities. By introducing the LTA in this step, we can analyze the probabilities of families maintaining a similar state or the likelihood of them transitioning to a different state over time.

Introduce covariates into the model. Before using covariates in our LTA, it is imperative that the model up to this step fit the data well and be identified (i.e. have sufficient degrees of freedom to run the analyses). The use of covariates have two major purposes, first, they will be used to predict membership in different statuses in pre and post. Second, for the LTA they will help predict the probability to changing states during the transition period. Categorical covariates will be dummy coded in order to fit the multinomial regressions.

While it is believed that transitions will occur in part because of the passage of time, it is hypothesized that access to resources and different demographic factors can affect the probabilities of changing states during the transition process. Questions about access to sufficient transportation and housing will be used as well as social supports like access to a babysitter. Also, demographic variables such as education, gender of the child, and ethnicity will help explain the variance in the transition probabilities.

Analyze pre and post outcomes. Lastly, child outcomes will be analyzed in wave one and two. The purpose of analyzing the first wave is to have a baseline and context while analyzing wave two. During the second wave we will also be using current family state and covariates to predict outcome scores. This study will focus primarily on academic achievement (early literacy, expressive language, and vocabulary). It is hypothesized that as the family adapts to the transition

of having a child with a disability in school, positive adaption will have beneficial effects on the child, buffering possible negative effects.

CHAPTER IV

RESULTS

The goal of this paper was to look evaluate transition process of having a child with a disability that is entering into preschool and how it relates to parental empowerment and perceived support. To evaluate this we partitioned the process into 4 different steps. First, the relationship between empowerment and perceived support was evaluated to see if different classes emerged in the CD families. Second, determine transition probabilities between different classes between having the child transition into preschool. Third, analyze the effects of different covariates on the likelihood of transitioning to different classes. Lastly, child outcomes were compared based on class membership pre and post transition.

Data Preparation

During data preparation, steps had to be taken to improve the predictive power of multiple complex analyses. Due to smaller a smaller sample size (n=119), participants from time one that didn't participate in time two and vice versa (n=123) were introduced to lend statistical power to the more involved analyses. Missing data were estimated using full information maximum likelihood (FIML). No indicators were present to suggest respondents' missingness was due to another variable, thus we assume data missing at random. During covariate analyses demographic information such as gender, education and ethnicity were used due to its stability over time, however, missing data were handled with listwise deletion as is typical with covariates

resulting in varying sample sizes in some covariate analyses. Due to sample size restrictions and the complexity of the analyses being used, covariates were introduced individually also, transition outcomes were evaluated compared to the base LTA models without covariates.

Latent Class Analysis

As the first step of the LTA a latent class analysis (LCA) was performed to evaluate the appropriate number of classes and assess model fit. Table 1 contains the model fit indices. During time one AIC and adjusted BIC continue to drop steadily till the 5th class, however, class membership in classes begins to dip below 10% of the sample which indicates that a 4 class solution is the better solution. During time two AIC and adjusted BIC continued to drop up till a six class solution, however, all classes no longer held at least 10% of the sample. These results seem to indicated that while on the border, time two shows a possible 5th class. These differences can occur with missing data differences between time points or unique transitions that phase out classes over time. In developing a model for an LTA, while both models help inform the model building process, an overall model including all waves of data is recommended (Collins & Lanza, 2010). For the overall model a 4 class solution was chosen (see table 1).

Latent status descriptions.

From our LCA analysis, four distinct classes were discovered (table 2 and figure 5). The first class is the **low empowerment medium support (LEMS)** group typified by the lowest scores in empowerment and average scores in perceived support. Class 2 is the **high empowerment and low support (HELS)** group earning the above average scores in empowerment and the lowest scores in support. The third class is the **high empowerment high support (HEHS)** group. This group scored among the highest scores in empowerment and perceived support. Lastly, class 4 is the **medium empowerment medium support group (MEMS)** which had average scores in both variables.

Latent Transition Analysis

For the LTA probabilities were calculated (table 3) and showed that in the base model, there was a 66.8% chance that individuals beginning in the LEMS state staying in LEMS after the transition. There was a 28.1% chance of transitioning to HELS and 6.6% probability of transitioning to the MEMS. For the HELS state, individuals that started in HELS in time one had a 46.1% chance of staying. There was a 23.2% chance of transitioning to LEMS, 7.4% chance of going to HEHS and a 23.3% chance of moving to MEMS. HEHS individuals had a 73.5% chance of staying after the transition, a 7.1% chance to transition to HELS and a 19.4% chance to transition to MEMS. For MEMS, there was a 71.1% probability of individuals in staying in the same state after transition, a 2% chance of transitioning to LEMS, a 3.8 % chance of moving to HELS and a 23.1% chance of moving to HEHS.

Introduction of Covariates

After the LTA model was completed and analyzed, the next step was to introduce covariates into the model. The LTA with covariates was done in 3 steps as opposed to the traditional one step method. The one step method combines both the latent class model and regression with the covariates into one joint model (Asparouhov & Muthén, 2014). The three step model first estimates the base LCA, then estimates the transitions between time one and time two. Lastly, auxiliary variables (covariates) are introduced using multiple imputation. The exploratory nature of the study, sample size limitations, and the number of covariates used in the model all are better handled through the three step method vs. one step (Vermunt, 2010). The results of these analyses describe the probability of transitioning from one class to another from time one to time two depending on the covariate. Some estimates were fixed due to lower instances of those transitions in the data, those will be indicated in the results and should be interpreted with caution. The results with covariates can be referenced in Tables 4-11.

Gender. For this covariate we compared families that had a male child with a disability compared with a female. This dichotomous variable was used in comparing transition probabilities between different states. Results are broken up by what state they began in for time one.

LEMS. Gender predicted transition probabilities in the LEMS state. Having a female child with a disability increased the probability of transitioning to the MEMS state over HELS for time two (B = -16.55, p = <.001). Families that have a girl with a disability are also more likely to end up in HEHS compared to MEMS (B = 8.413, p = <.001) compared to having a boy with a disability. These families are also more likely to transition to HEHS compared to HELS (B = -24.97, p = <.001). Having a female child predicted a greater likelihood of staying compared to transitioning to HELS (B = 16.781, p = <.001) while a greater likelihood to move to HEHS than stay in LEMS (B = -8.184, p = <.001).

HELS. There were no gender effects on transitions for families who began in HELS in time one.

HEHS. Having a female child with a disability compared to a male predicted significant changes in probabilities in the HEHS group. While beginning in HEHS, female CD families were more likely to transition to HELS compared to staying in HEHS (B = 19.721, p = <.001). They are also more likely to transition to HELS compared to moving to either LEMS (B = -27.35, p = <.001) or MEMS (B = 21.306, p = <.001)

MEMS. While beginning in MEMS in time one, CD families in which the child is female showed a greater likelihood to transition to HELS (B = -24.45, p = <.001), HEHS (B = -25.24), p = <.001) or staying in MEMS (B = -24.2, p = fixed) over moving to LEMS.

Ethnicity. Due to almost three quarters of the sample reporting to be white (73.1%), to aid with analysis, a dichotomous variable was created breaking the sample into Caucasian and not. This variable was used in comparing transition probabilities between different states. Results are broken up by what state they began in for time one.

LEMS. Ethnicity also had a significant impact on transition probabilities. Compared to other ethnicities, white families were much more likely to transition out of LEMS to HELS (B = -

16.83, p = <.001), HEHS (B = -3.133, p = .05), and MEMS (B = -18.04, p = <.001) than families of different ethnicity. These families were less likely to transition to HEHS, instead going to MEMS (B = -14.9, p = fixed) or HELS (B = 13.7, p = fixed).

HELS. White families also are more likely to transition to HEHS compared to staying in HELS (B = -9.58, p = <.001). The same holds true for other states, families that start in HELS are more likely to leave for LEMS (B = 12.295, p = <.001) or MEMS (B = -10.59, p = <.001) compared to staying in HELS.

HEHS. Families that begin in HEHS are more likely to transition to HELS (B = 21.878, p = <.001) than stay in HEHS in time two. Families also favored HELS over MEMS in time two (B = 21.07, p = fixed) and HELS over LEMS (B = -15.5, p = fixed). The probabilities also showed Caucasian families moving to LEMS (B = 6.344, p = <.05) rather than staying in HEHS or moving to MEMS (B = 5.538, p = fixed) those who are not white.

MEMS. While beginning in MEMS, white families are more likely to transfer to HELS than stay in MEMS than those of other ethnicities (B = 6.583, p = <.001). Also, white families are more likely to transition to HELS compared to moving to HEHS (B = 6.485, p = <.001).

Parent education. Parental education was measured on a continuous scale ranging from not finishing high school (1) to receiving a PhD (6). This variable was used to compare transitions based on both mothers and fathers education. Results are broken up by what state they began in for time one.

LEMS. Families that begin in LEMS do not show any effects of either mother or father education on transition probabilities.

HELS. For families in the HELS state in time one, there is a greater chance for them to avoid transitioning to the LEMS state as father education increases. Transitioning to MEMS (B = -70.31, p = <.001), HEHS (B = -35.12, p = <.001) and staying in HELS (B = -11.03, p = <.001) are all greater when compared to the LEMS state. Father education also increased the likelihood for families to transition out of HELS to HEHS (B = -24.1, p = fixed) or MEMS (B = -59.3, p =

fixed). These same families tended to transition more often to MEMS than HEHS as father education increased (B = -35.2, p = fixed). Mother Education also increased the probability of transitioning to HEHS (B = -30.73, p = <.001), MEMS (B = -26.7, p = fixed) or staying in the HELS (B = -26.05, p = <.001) state compared to moving to the LEMS state.

HEHS. Father education had an impact on the probability of staying in the HEHS state compared to transitioning to the LEMS state (B = -.625, p = <.05). There were no other significant effects for mother education.

MEMS. Families beginning in the MEMS state are more likely to transition to the HELS state than the moving to the HEHS as both mother education (B = 48.534, p = <.001) and father education increase (B = 1.926, p = <.05). Mother education also increased the likelihood of transitioning to HELS than ending up in LEMS (B = -47.19, p = <.001) or staying in MEMS (B = 48.42, p = fixed).

Housing and transportation needs. Housing and transportation needs was measured on a continuous scale ranging from excellent (1) to poor (4). This variables were used to compare transition probabilities with results being broken up by what state they began in for time one.

LEMS. For families that began in the LEMS state, the poorer their transportation needs became the less likely they were to transition to HEHS and eventually end up in MEMS (B = -4.718, p = <.001) HELS (B = 5.789, p = <.001), or stay in LEMS (B = 4.062, p = <.001). Housing needs only slightly impacted transitions probabilities of transitioning to HEHS compared to HELS (B = -.548, p = <.05).

HELS. Housing and transportation needs affect the majority of the transitions for families that begin in the HELS state. The more room for improvement they could see in their housing situation increased their likelihood of transitioning to HEHS compared to moving to the MEMS (B = 33.19, p = <.001), LEMS (B = -35.5, p = <.001) or staying in HELS (B = -23.32, p = <.001). These same families were more likely to stay in the HELS state compared to transitioning to MEMS (B = 9.868, p = <.001). Transportation needs also had a significant effect

on transitions. The more families saw room for improvement in their transportation needs were associated with higher probabilities of not transitioning into the LEMS state. These families were more likely to transition to MEMS (B = -10.41, p = <.001), HEHS (B = -11.94, p = <.001), or stay in HELS (B = -10.81, p = <.001).

HEHS. Families beginning in HEHS report a poorer housing situation have a greater likelihood of staying in HEHS compared to transitioning to HELS (B = -11.06, p = <.001) LEMS (B = -.741, p = <.05) or MEMS (B = 11.417, p = <.001). If families do transition out of HEHS they are more likely to transition to LEMS than wither MEMS (B = 10.675, p = <.001) or HELS (B = -11.06, p = <.001). Transportation needs also affect transition probabilities with families reporting poorer transportation circumstances more likely to transition to lower empower states like MEMS (B = -13.01, p = <.001) or LEMS (B = 13.687, p = <.001) instead of HELS. Furthermore, families actually were more likely to stay in HEHS than transition to HELS (B = -13.31, p = <.001).

MEMS. Beginning in the MEMS state at time one did not see major transition changes as transportation fluctuated but experienced different probabilities for housing needs. Although, families that saw room for improvement in their housing situation had a higher probability of staying in MEMS over transitioning to LEMS (B = -18.7, p = <.001) or HELS (B = -16.39, p = <.001). If families transitioned out of MEMS it would most likely be HEHS over moving to HELS (B = -17.01, p = <.001) or LEMS (B = -19.32, p = <.001).

Diagnosis. Diagnosis was used in two dichotomous variables based on the two major diagnosis categories. The first was developmental disability that encompasses many different disabilities. The other category is those that report having a speech related disability. Both variables are dichotomous mutually exclusive with 1 indicating that the individual has the disability and 0 indicating that they do not. Comparisons within this section are between those who report having the disability against those who don't. Results being organized by what state they began in for time one.

LEMS. Having a child with a developmental diagnosis increased the likelihood of families staying in LEMS compared to transitioning to HELS (B = 18.405, p = <.001) or HEHS (B = 2.35, p = <.001) than those with another diagnosis. If families transitioned out of LEMS in time two it was more likely to MEMS (B = -13.92, p = <.05) or HEHS (B = -16.05, p = <.001) than move to HELS. Families that had a child with a speech diagnosis also were more likely to move to MEMS (B = -25.1, p = fixed), HEHS (B = -24.8, p = fixed), or stay in LEMS than transition to HELS (B = 22.071, p = <.001) compared to other families with a different diagnosis.

HELS. Families that have a child with a developmental disability that began in the HELS state struggled to transition into the HEHS state. Families were more likely to transition to either the LEMS (B = 11.159, p = <.001), HELS (B = 12.669, p = <.001) or the MEMS (B = -10.2, p = <.05) compared to other families with a child that have a different diagnosis. Families starting in the HELS state in time one were more likely to transition to HEHS (B = -22.8, p = <.001), MEMS (B = -22.08, p = <.001) or stay in HELS (B = -18.26, p = <.001) compared to transitioning to LEMS then families with other diagnoses.

HEHS. Having a child with a developmental disability increased the odds for staying in HEHS compared to transitioning to LEMS (B = -1.105, p = <.05). Having a child with speech disorder had the opposite effect on transition probabilities, increasing the likelihood of transition to LEMS (B = 19.267, p = <.001) or MEMS (B = -23.33, p = <.001) significantly. Also families tended to transition to MEMS (B = -24.7, p = fixed) or LEMS (B = 20.6, p = fixed) over moving to HELS.

MEMS. For families that have a child with a developmental disability, there is an increased likelihood of transitioning to HEHS (B = 15.51, p = <.001) or staying in MEMS (B = -15.58, p = <.001) than transitioning to HELS. However, there is a higher likelihood of moving to LEMS than HELS when starting in MEMS (B = 16.747, p = <.05) compared to families with different diagnoses.

Child Outcomes

As the final step of the plan of analysis, child outcomes were calculated based on the standard LTA model constructed in step 2. Mean difference scores were calculated based on individuals and their transition patterns to see if children that had parents with different transition patterns scored differently on the Peabody Picture Vocabulary Test (PPVT), the Merrill Palmer Expressive Language subscale (MPEL) and the Emergent Literacy Measure (ELM) gathered in time two. Due to the quantity of significant results between groups (74 significant results for the PPVT, 32 for MPEL and 44 for ELM), general trends will be reported broken down by test and what state the child began in, see table 4 for reference.

PPVT.

LEMS. In general, beginning in the LEMS state at time one was significantly detrimental to PPVT scores. In the 54 comparisons between individuals that began in the LEMS state, 41 (75.9%) showed significantly lower scores. When comparing individuals that began in LEMS to individuals that began in a different state in time one that percentage increases to almost 80%. Of the comparison groups individuals that began in the HEHS state in time one scored on average 55.339 points higher than individuals that began in the LEMS state regardless of where the two groups of individuals transitioned in time two.

HELS. For the HELS states there are some interesting trends. Comparatively, individuals that stayed in HELS in both states scored on average 12.42 points lower than children that started in a different state and transitioned to the HELS state in time two. A similar pattern can be seen in the reverse, even after to transitioning to a different state, individuals that began in HELS and moved to either HEHS or MEMS scored on average 26.25 points lower than those individuals with that started in a HEHS or MEMS and stayed in their same state in time two.

HEHS. The most interesting finding in the HEHS category comes from a group of parents that report high empowerment and high perceived support in time one and in time two report high empowerment and low perceived support (HELS). These families had children that scored 35.457

points higher on the PPVT standardized score than *any* other group. These differences were significantly different for each comparison.

MEMS. For families that start in MEMS, there seemed to be a benefit for staying in MEMS at time two. Individuals that had parents that stayed in MEMS tended to score 28.418 points higher compared to other groups even when that transition involved increasing perceived support and empowerment.

MPEL.

LEMS. For expressive language, drastic improvement in empowerment and increased perceived support reported by parents from time one to time two don't appear to translate to the child with a disability. This trend appears in one group in particular. For those families that transitioned from LEMS to HEHS on average had children that scored 56.497 points lower comparted to other children that had other transition experiences.

HELS. Differences between groups do not seem to be as pronounced in the HELS group for expressive language. One trend that could be possible is that or all four significant differences are going to be associated with contrasting a MEMS group discussed in that section.

HEHS. Scores did not widely vary in the HEHS state. A small group of children that transitioned from HEHS to LEMS scored significantly better than students in moving to HELS or staying in HEHS.

MEMS. Families that transitioned from MEMS to HELS scored significantly lower on expressive language scores. In twelve comparison groups families that transitioned from MEMS to HELS scored over 56 points lower on the expressive language scores than other children in different transition groups.

ELM.

LEMS. An interesting trend could be seen with families beginning in LEMS in regards to literacy measures. It appeared that perceived support may play a bigger role than in other child outcomes. In comparisons those families that stayed in LEMS at time two had significantly lower scores in

40% of the transition possibilities. In comparison groups where parental empowerment raised such as families transitioning from LEMS to HELS didn't produce significant changes when compared to groups in which parental empowerment dropped but support raised or stayed the same (MEMS to LEMS or HELS to MEMS). Families also belonging to the LEMS to HEHS group had significantly better scores than families with different transition patterns in over 85% of the comparisons.

HELS. The most prevalent trend in the HELS group was that benefit of transitioning out of HELS in time two. Families that transitioned from HELS to MEMS showed significantly higher scores when being compared to families that began in higher support states such as HEHS to HEHS, MEMS or HELS also MEMS to MEMS or HEHS.

HEHS. For families beginning in the HEHS state scored surprisingly worse than other transition comparisons. Families that began in HEHS and transitioned to HELS scored lower than families beginning in MEMS and transitioning to HELS. Families staying in HEHS in time two also scored significantly lower than the HEHS to MEMS, MEMS to LEMS or HELS groups.

MEMS. Scores show that many children had significantly higher scores in the MEMS to LEMS group than in 66% of the other groups. This includes many groups that show families starting or ending in higher states in either time one or two.

This section covered the results or this study in four major parts. First, using parental empowerment and perceived support as indicators, four latent classes were identified within families that had a child with a disability transitioning into preschool from early childhood intervention. Second, results of the latent transition analysis showing the likely transition patterns of these families from time one to two. The third step involved introducing covariates into the LTA and measuring their effect on transition probabilities. Lastly, differences in child academic outcomes were calculated and trends identified. In the following section, these results and their significance are discussed.

CHAPTER V

DISCUSSION

In the previous chapter the results of the study were conducted and reported. This chapter has a summary of the study, discussion of the findings in the results section, list of strengths and weaknesses of the study, exploration on implications for practice and recommendations on future research. The goal of this section is to synthesize the research on the influence of resources on levels of empowerment and perceived support found in this study within the context of the literature in the field. Furthermore the discussion is intended to inform current practices with support agencies of families that have a child with disability and encourage future research in the area.

Summary of Study

The study focuses on change and adaptation through normative life events, one of which is having a child enter preschool. These transitions are usually accompanied by increased stress on the family system as the family mobilizes their internal and external resources to adapt to the change in their environment. This stress can compound if the child that transitions into preschool has a disability. These families are at increased risk for negative outcomes. Interventions and resources are necessary to protect these at-risk families. The current study was designed to discover differences of empowerment and perceived support in parents that have a child with a disability. The four-part plan of analysis focused on finding groups of parents with similar

of the latent variable of empowerment and support through a latent class analysis. Secondly, a latent transition analysis accompanied with a multinomial logistic regression was performed to calculate the probability of families transitioning from one state to another as children entered preschool. Third, covariates were introduced to evaluate their effect of transition probabilities between families. Lastly, child outcomes (emergent literacy, expressive language, and receptive language) were measured and compared between different latent groups.

To answer these questions, the present study performed a secondary data analysis on the a sample of 207 parents that have a child with a disability from the multistate National Early Childhood Transition Center (NECTC) dataset. Data in this study were gathered after the child with a disability transitioned out of early intervention support and again before transitioning their child into preschool. Parents' empowerment was measured using the Family Empowerment Scale (FES) and perceived support through the Family Support Scale (FSS). Other demographic questions such as ethnicity, gender, and education were gathered as well as questions surrounding transportation and housing needs. Children outcomes were measured through the Peabody Picture Vocabulary Test (PPVT) as a measure of receptive language, the Merrill Palmer Scales of Development – Revised (MP-R) measuring expressive language, and the Emergent Literacy Measure (ELM) gauging emergent literacy.

This study included 3 exploratory research questions:

1. While exploring the effects of internal, social and community resources that a family with a child diagnosed with a disability employs to adjust to daily stresses in life, are there specific groups or classes of families that have similar characteristics in the sample?
2. What factors (resources) have the greatest effect on the probability of belonging to a group after the child's transition into preschool? How do family states change during their adaptation phase to a normative stressor? Are there factors that have a greater influence on transition probabilities than others?

3. Does membership in these specific latent groups affect child academic outcomes when controlling for disability? Do parental internal resources have a potential effect on child outcomes?

Question one was answered using a latent class analysis, identifying different groups or classes according to their levels of the empowerment and perceived support. Questions two and three were answered using different parts of a latent transition analysis. For question two transition probabilities of the likelihood of one family changing from one class/state to another as their child transitions to preschool. From those results, covariates were introduced into the LTA model to examine the difference it made in transition probabilities between groups. For the third research question, the transition patterns discovered in the LTA were used to compare child literacy and language scores to see if differences existed between different transition patterns. Theoretically, these results illustrate the process of families using internal and external resources to adjust and adapt to stress according to the FAAR model. The themes and findings are discussed in greater detail in the subsequent section.

Discussion of Findings

Research Question 1 - While exploring the effects of internal, social and community resources that a family with a child diagnosed with a disability employs to maintain equilibrium, are there specific groups or classes of families that have similar characteristics in the sample?

Upon running a LCA, four latent classes emerged from the data (Table 2 and Figure 5). The findings show there are unique nuances in regards with parent's empowerment and perceived support and that not all parents with a child that has a disability are the same. The first class was **low empowerment medium support (LEMS)** class which had the lowest scores in empowerment and average scores in perceived support. These were not just the lowest empowerment compared to the other classes; these families scored over two standard deviations below the classes with higher empowerment. The second class is **high empowerment and low**

support (HELS) class scoring above average scores in empowerment and among the lowest scores in support. An interesting item of note is that upon analyzing the means of each class, the HELS class did not vary substantially compared to the LEMS or MEMS classes in perceived social and professional support. What separated the HELS class were the low scores in perceived family and spousal support. These parents appear to be highly empowered to parent the child, be active in making sure their child is getting services, and advocating for their child in the community. However, they do not perceive adequate support from others around them, especially those support systems closest to them (family and spousal).

The third class is the **high empowerment high support (HEHS)** group. This group scored among the highest scores in empowerment and perceived support. For the support scores, parents in the HEHS class were substantially higher than the other classes with their highest score being in social support which rated similarly average across the other three classes. These families report similar amounts of empowerment to the HELS class but perceive their support to be high across all aspects (family, spouse, social, professional). Lastly, class four is the **medium empowerment medium support (MEMS)** group which had average scores in both variables. In terms of support, scores were the highest compared to all of the other average or low support score classes. While all classes have extreme scores in either empowerment or support, the MEMS class never varied more than a half standard deviation from the mean. These attributes within classes will have a bigger role to play within transition probabilities in subsequent research questions.

Research Question 2 - What factors (resources) have the greatest effect on the probability of belonging to a group after the child's transition into preschool? How do family states change during their adjustment phase to a normative stressor? Are there factors that have a greater influence on transition probabilities than others?

Before introducing covariates, the LTA showed transition probabilities. In the base model many interesting trends. As discussed in the methods section, when running LCA analyses groups

or classes are made based on a point in time. In LTA analyses, those classes are allowed to vary from one time point to another, in order to capture that ability to change, classes are referred to as states.

For the LEMS state, there was a majority (66.8%) of individuals that stayed in the LEMS state in time two. The next biggest transition was to the MEMS state (27.8%) indicating an increase of empowerment and a negligible increase in perceived support. This could be interpreted as a "step up" to a higher empowerment or support state. This theme will be explored throughout the discussion. In this sample, families tend to step up or down gradually from one state to another rather than make drastic changes between the two time points. Out of 16 different transition probabilities, three did not occur within the sample of 207 parents, those patterns would have been considered "jumps" either up or down from the highest or lowest states in terms of empowerment and support. This trend could be evidence that change in families, either positive or negative, is incremental. Findings such as these also accentuate the need for longitudinal studies to analyze this change over time.

The HELS state acts as the most volatile state with less than half (46.1%) of individuals starting in HELS remaining there in time two. This state acts almost as a tipping point for individuals beginning here in time one. It is hard for families to maintain high empowerment in the face of a lack of perceived support. Either families reach out for increased support in order to balance the demands of the stressors during the transition (moving to the MEMS state) which could be perceived as positive adaptation or they could lose their empowerment all together and fall into the LEMS state. There is also another argument that there is evidence of the importance of both internal and external resources. Empowerment or the confidence to enact change in your surroundings is a valuable internal resource. Perceived support is measured by how much help is perceived around the parent to help them succeed. These transition probabilities show the difficulty of maintaining high internal resources (empowerment) and low external resources (support) both are needed to help balance out stressors.

The HEHS state shows the highest probability of staying in the original state between time points (73.5%). The next closest transition probability is "stepping down" to MEMS (19.4%). These findings suggest the possibility of the protective factor against the risk of negative adaptation in families, if families have successfully adjusted (step one of the FAAR model), there is greater likelihood of positive results during the adaptation phase (step two of the FAAR model). In the current sample, no one transitioned from the highest state (HEHS) to the lowest state (LEMS). Lastly, the MEMS state did not exhibit the same probabilities expected. In our sample MEMS showed an average score in both empowerment and perceived support. It could be assumed that a similar transition pattern to HELS where individuals would either step up or down according to how they adapted to the transition. What was seen is that a majority were more likely to stay in the MEMS state (71.1%) and that the next highest probability stepped up to the HEHS state (23.1%) leaving only a 5.8% probability to step down to lower support in the LEMS or HELS states.

Covariates

Ethnicity. For the covariate analysis on the LTA ethnicity was transformed into a dichotomous variable to assure sufficient numbers in each group. Interesting themes included an overall increased likelihood to transition to the HEHS state from the lower support states (LEMS and HELS) than non-white families. These findings coincide with research that shows Caucasian families are more likely to have better experiences in getting a diagnosis than non-whites (Siklos & Kerns, 2007; Sansosti, Lavik & Sansosti, 2012). These probabilities shine a light on the increased risk of multicultural families in lower support states and the need of helping them step out of these states to states with more support. Another interesting trend happened when looking at Caucasian families beginning in the HEHS state compared to multicultural families. Caucasian families were more likely to not only leave the HEHS state but when they left they were more likely to fall to the lower support states (LEMS and HELS) than step down to MEMS compared to non-white families. This same pattern occurred to white families starting in MEMS. Families

in the MEMS state were more likely to step down to a lower empowerment/support state than step up compared to other families. These results could be explained through multicultural families having to work harder to get to higher support states during the adaptation phase. Once there, the abilities and other capabilities they learned helped them to stay in higher states during the adaptation phase. Another explanation could be that probabilities were higher due to the greater amount of white families beginning in HEHS or MEMS states, increasing the incidence of some white families transitioning to lower states naturally compared to the smaller multicultural population.

Parent education. Parent education interestingly had no influence on transition probabilities out of the LEMS state. It did not matter how educated parents were, if they were not empowered to make changes in the different systems around the child, it did not happen. However, it did have a significant effect on the trends described earlier with families beginning in the HELS state. In the LTA of families beginning in the HELS state, there was a split distribution in transition probabilities between families stepping down to the LEMS state and stepping up to the MEMS state. When parental education was added as a covariate, the LTA showed that families with increased father and/or mother education, the probability to step up went up significantly compared to stepping down. This phenomenon could be due to multiple factors: higher education most likely means higher salary and thus, greater access to resources. Increased education could also act as a protective factor in terms of empowerment. As education increases, understanding of how to interact with the different systems around their child could increase as well. Evidence of this could be seen in families that began in the MEMS state: as parent education increased there was a greater likelihood that when families stepped down from the MEMS state, they tended to fall in the higher empowerment HELS state compared to the lower empowerment LEMS state.

Housing and transportation needs. The results for housing and transportation needs were interesting in terms what they tell us about perception and the likelihood of stepping up or down from time one to time two. The overarching theme is that the *poorer* the report was in terms of

how transportation and housing needs were met in time one the *more likely* individuals would step up when their child transitioned into preschool. These results could be evidence of the importance of perception of the event in the adjustment and adaptation phases influencing the adaptation process in the FAAR model. Meanings can mediate the way families perceive the challenges they face (demands) and also their capacity of meeting those demands (capabilities). Individuals in LEMS and HELS showed that the more room they saw for improvement in terms of their housing and transportation needs, the more likely they were to move up to HEHS or MEMS. This theme continued for families that saw room for improvement in the higher support states. Families that reported lower levels of transportation and housing needs being met at time one were more likely to be in HEHS or MEMS during the preschool transition compared to those families that reported better transportation and housing conditions. It appears that as families perceive room for improvement, the more likely they are to move towards it as they adapt to changing conditions such as having a child transitioning into preschool.

Diagnosis. The results of diagnoses were broken into two major categories, those families that had a child with a developmental delay/disability and those with a child that has a speech delay/disability. Results showed that children with a developmental disability were are at greater risk of staying in the LEMS state compared to families that had a child with a different diagnosis. This trend was the opposite for children that had a speech diagnosis: they were more likely to step up compared to other CD families. The FAAR model would explain this in terms of the demands being greater on the families that had a child with a developmental diagnosis than a speech diagnosis, making it harder to positively adapt after crisis. The research supports this assumption with studies showing an increased strain on parents that have a child with a developmental disability compared to other CD families (Nachshen et al.,2005).

Differences in diagnosis showed similar signs to ethnicity when it came to higher support states. Families that had a child with a developmental disability were more likely to stay in MEMS or HEHS than children with a speech disorder. This could due to the fact that families that

have positively adjusted to their demands during the adjustment phase, show better likelihood of positively adapting when a crisis comes, which speaks to possible evidence of resilience in the face of risk (Walsh, 2012). Another explanation is that there could be a greater instance of children that have a speech diagnosis that start in HEHS or MEMS than children with a developmental diagnosis.

Child gender and respite care. Among the other covariates child gender and respite care were introduced. Having a female child with a disability acted as indicator of generally better outcomes. These families were more likely to transition out of lower states to higher ones compared to families that have male children with a disability. These results could be explained with the high instance of males having autism (Looms, Hull, & Mandy, 2017) and the unique demands autism places on families (Rodrigue, 1990). When the variable measuring the ease of locating a babysitter for their family was introduced into the model there was very little effect on transition probabilities. While these findings are similar to exploratory research on respite care for families that have a child with a disability (Neufeld et al., 2001), there are significant limitations on the generalizability of these findings. While babysitting could be a valuable resource for families that have a child with a disability, babysitting should not be equated to formal respite care. Also, the question asks families if babysitting is easily accessible, not if the babysitting is utilized. This is an important distinction in a population that frequently reports to being likely to reach out to social resources than other populations (Higgins et al., 2005).

Research Question 3 - Does membership in these specific latent groups affect child academic outcomes when controlling for disability? Do parental internal resources have a potential effect on child outcomes?

For the mean comparisons, holding all things constant, different trends appeared in the mean difference scores comparing different trajectory patterns. These themes will be discussed in this section. The first theme is the emphasis of the first state being key in outcome scores. Children that had parents in the LEMS state had poorer receptive language (PPVT) scores than

children that were in different states in time one. Almost 80% of these LEMS families scored significantly lower than other groups. Similar state results appeared in the expressive language scores (MPEL). Even though parents stepped up to HEHS during time two, scores were still lower on average. Emergent literacy (ELM) showed similar patterns to the receptive language measure with a considerable amount of families staying in LEMS in both time points reporting lower scores than other transitions. These findings accentuate the importance of early intervention and the effects of positive adjustment in early stages possibly acting as a blueprint for success in later adaptations to changes in the family (Corsello, 2005; Nachshen & Minnes, 2005; Stuttard et al., 2014; Villeneuve et al., 2013).

For families beginning in the HELS state there is evidence of the importance of the first transition point being crucial to understanding academic scores for children. Receptive language scores suffered when families began in the HELS state, even if these families stepped up to higher support states in time two. Interestingly the opposite effect occurred with emergent literacy. There was a trend of families that families that began in HELS and transitioned to HEHS in time two had higher scores than many of the family transition patterns that had parents staying in high support states in both time points (HEHS and MEMS). This effect could be evidence of highly empowered parents finding resources during the transition between government systems discussed in the introduction and the children benefitting.

HEHS families and MEMS families exhibited predictable higher scores than other transition patterns in receptive language scores if they stayed in the higher support states. Interestingly there was a small group of parents that transitioned from HEHS to HELS that had higher scores compared to a majority of other transition groups in both receptive language and emergent literacy. This phenomenon could be a part of the adaptation phase in which parents (predominately mothers) perceive that there will not be enough support during the transition and compensate for the perceived lack of support.

These findings as a whole show that the transition process is incredibly complex and nuanced. This exploratory study discovered different ways internal and external resources had an effect on the transition process of families that have a child with a disability. Overall transitions were incremental and step-like in nature. While three of the four states had a majority of people within them stay in the same state at during both time points, for those families that did change, different states had unique transition patterns. The LEMS state showed the importance of empowerment in making changes in the family. There was only a 5% chance of families moving from a low to a high level of empowerment. The HELS state appeared to be the tipping point for most families that began there. Unlike the other states, there was a greater likelihood that families would transition out of HELS than stay in time two. It was hypothesized that the extreme contrast of high empowerment and low support would be hard to maintain. Also unlike the other states, the HELS families were split in transition probabilities in time two. A quarter of families became discouraged and stepped down to the lower empowerment LEMS state and another quarter used their empowerment to possibly locate support and step up to a higher resource state (HEHS/MEMS). For both the HEHS and MEMS states there appeared to be a benefit to a balance in empowerment and perceived support. Both states showed over a 90% probability to stay in one of these two states from time one to time two. These benefits also were evident with the child with a disability, who regularly had higher outcome scores compared to children in the unbalanced states.

Adding to the complexity of the transition process, findings from this study highlighted the effects of ethnicity, education, and disability on families and transition patterns while factors such as informal respite care showed negligible effects. While these findings were helpful in understanding the transition process, when effects were not just seen as effectual and not, different interactions patterns emerged. Some covariates acted as risk factors to stepping up to higher states in time two (ethnicity and disability). Others resources were ineffectual in lower states but were protective factors in higher ones (education). Some factors, initially believed to be

a risk factor acted as catalysts for change (housing and transportation needs). These findings contribute a unique perspective on families that have a child with a disability and the different factors that can affect them during times of transition.

Strengths and Limitations

Throughout the current study many strengths and limitations became apparent. The NECTC data on childhood transitions is comprehensive dataset targeting a unique and underserved population. Instrumentation was another strength of the dataset, the NECTC researchers selected measures that had been validated on families that had a child with a disability and adapted measures to assure the most valid responses were recorded. Sampling was another strength in the dataset, the researchers strove for a representative sample across multiple states in different regions of the United States (Kentucky, Louisiana, Michigan, Oregon, and Wisconsin).

One of the challenges for the NECTC researchers came from the number of participants in the study. Originally planning on 400 participants, various challenges during the data gathering phase left the study with fewer participants than anticipated. These smaller sample sizes posed challenges during the intensive parts of analysis in the current study. During probability transition analyses, two probability transitions did not have any incidence of families taking that particular transition pattern; other transition patterns also suffered from lower than desired response rates. This affected comparison groups and made it so a complete picture could not be made in the analysis. While many steps were made in the analysis of the data to circumvent potential pitfalls, an increased sample size would have ameliorated the problem. Another limitation was the specificity of the disability diagnosis in the data gathering. While researchers did their best to gather the information, the severity of disability was not measured and almost a third of the sample used in the study didn't have a diagnosis. While a diagnosis was necessary to participate in the study, the lack of specificity coupled with small sample sizes prevented the current study from making more specific comparisons between disability groups.

Despite its limitations, this exploratory study and its findings is an important first step in better understanding CD families during times of transition. This study highlights the difficulty of gathering such detailed data on 207 CD families during a time of transition. Great lengths were made to make the data as complete and accurate as possible acting as strong reference point for future studies.

Implications for Practice

The current study has many implications for future practice. Within the context of the FAAR model this study highlights the need for fostering supports to aid the adaptation of families during times of risk such as having a child with a disability transitioning into preschool. Furthermore, while analyzing transition patterns the current study showed that the better families were during the adjustment phase (pre-transition) the more likely they were for more positive outcomes. This has implications for timing of support services. While a traditional approaches may focus on supporting the family during times of crises, findings in this study demonstrate that if supports are focused on helping the family adjust to the demands they face before the transition the more likely they are to maintain those benefits in times of increased stress. The present study also provided evidence that families tend to improve or regress in steps and not all at once and that results are gradual and best understood over time. The current study also illustrates the importance of studying the transitions families make as a reference point for future transitions. Understanding the risk and protective factors the family is utilizing during their adjustment phases may be a valuable indicator where family support specialists can help during normative transitions such as having a child enter preschool.

Recommendations for Future Research

In the field of disability research, more longitudinal studies are needed to analyze trends and trajectories of these families over time. Building off the current study, more data points over a longer period of time would have been an invaluable asset in understanding how previous transitions could affect current and future ones. Future studies could also study the breadth of

diversity within families that have a child with a disability. Larger samples focused on cultural differences within and between families as well as the unique demands that different types of disability have on the family.

In summary, the current study was designed to explore the influence of both internal and external resources of families that have a child with a disability during a time of transition by studying families that have a child with a disability enter into preschool. Many cross-sectional studies have been done looking at families that have a child with a disability but few studies have evaluated the changes of constructs such as empowerment or perceived support during times of transition. This study identified four unique classes of families and measured the transition probabilities of each class during a time of transition. Results showed that internal and external resources are gained in degrees or steps and not all at once. Demographic covariates were introduced such as education, ethnicity, gender, and type of disability showed that other factors present during transitions can increase or decrease risk of poor adaptation during times of crisis. This study demonstrated the complex nature of adjustment and adaptation in and underserved population in a unique way not present in the current research..

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APPENDICES

Appendix A: Figures

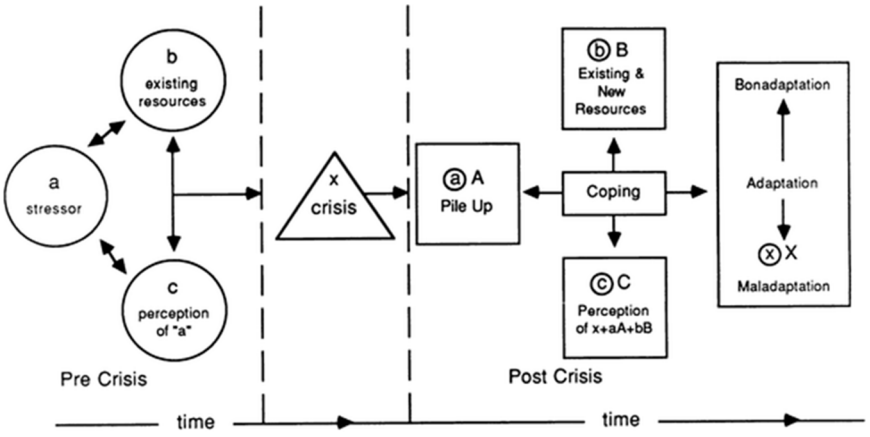

Figure 2: Double ABCX Model

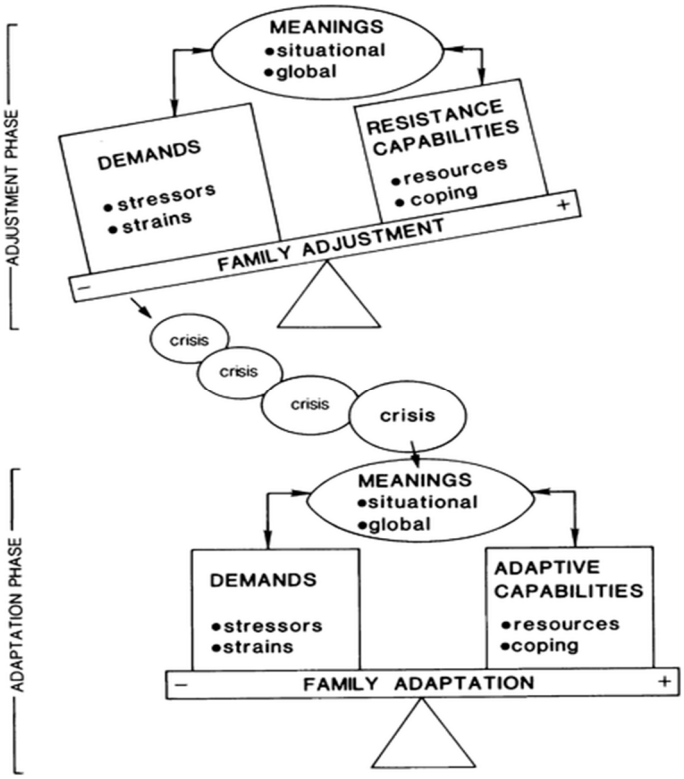

Figure 3: Family Adjustment and Adaptation Response Model (FAAR; Patterson, 1988)

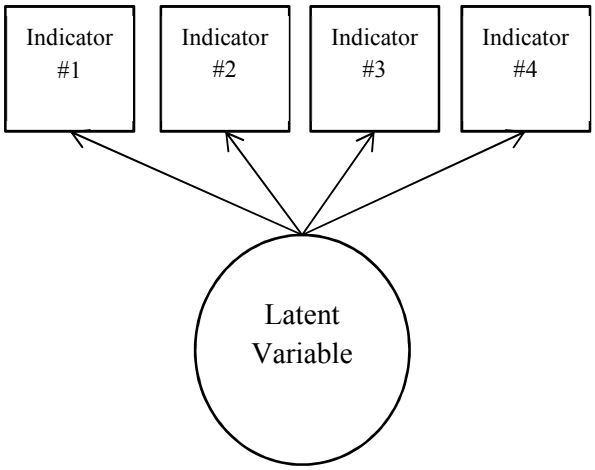

Figure 4: Example of a four indicator latent variable

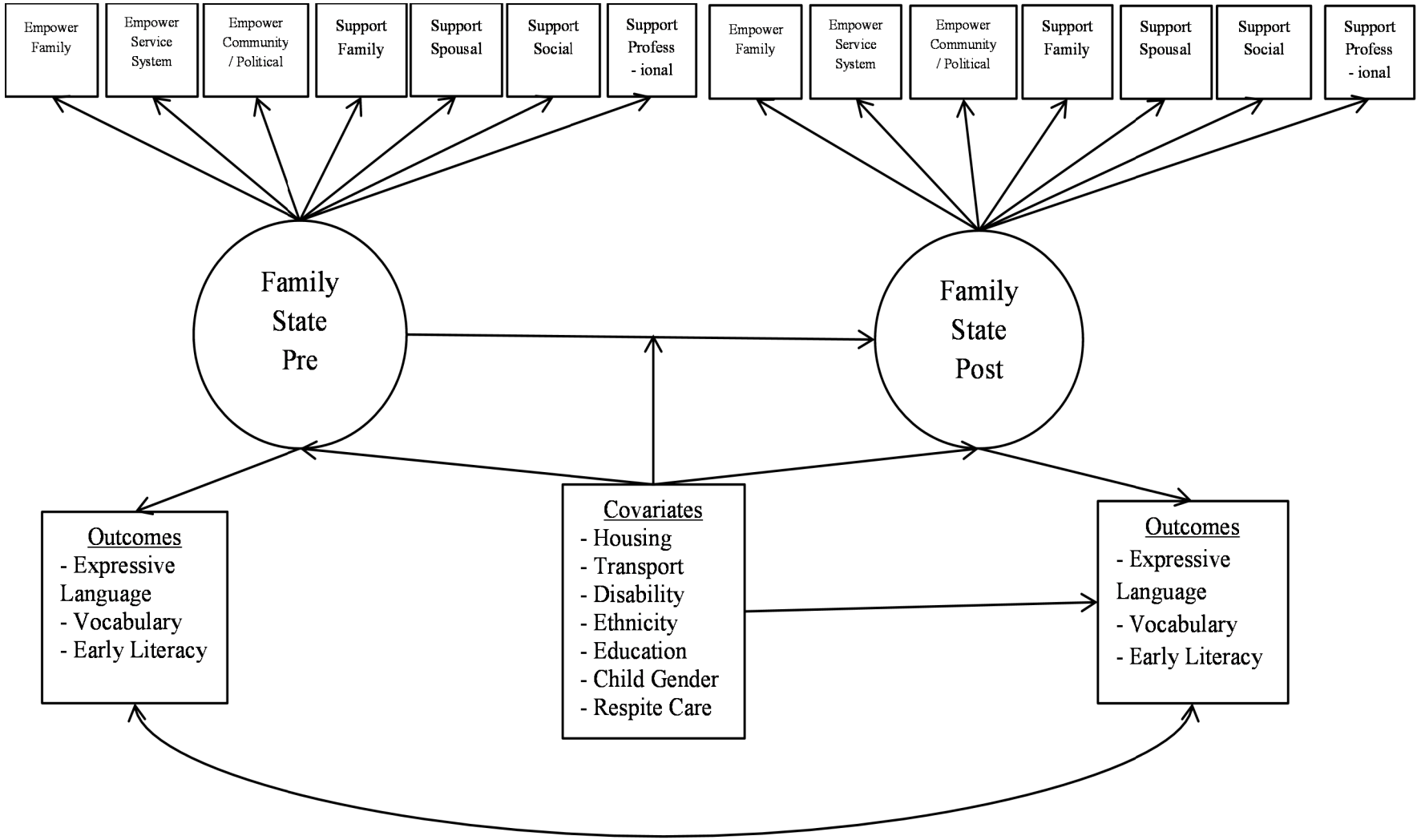

Figure 4: LTA model

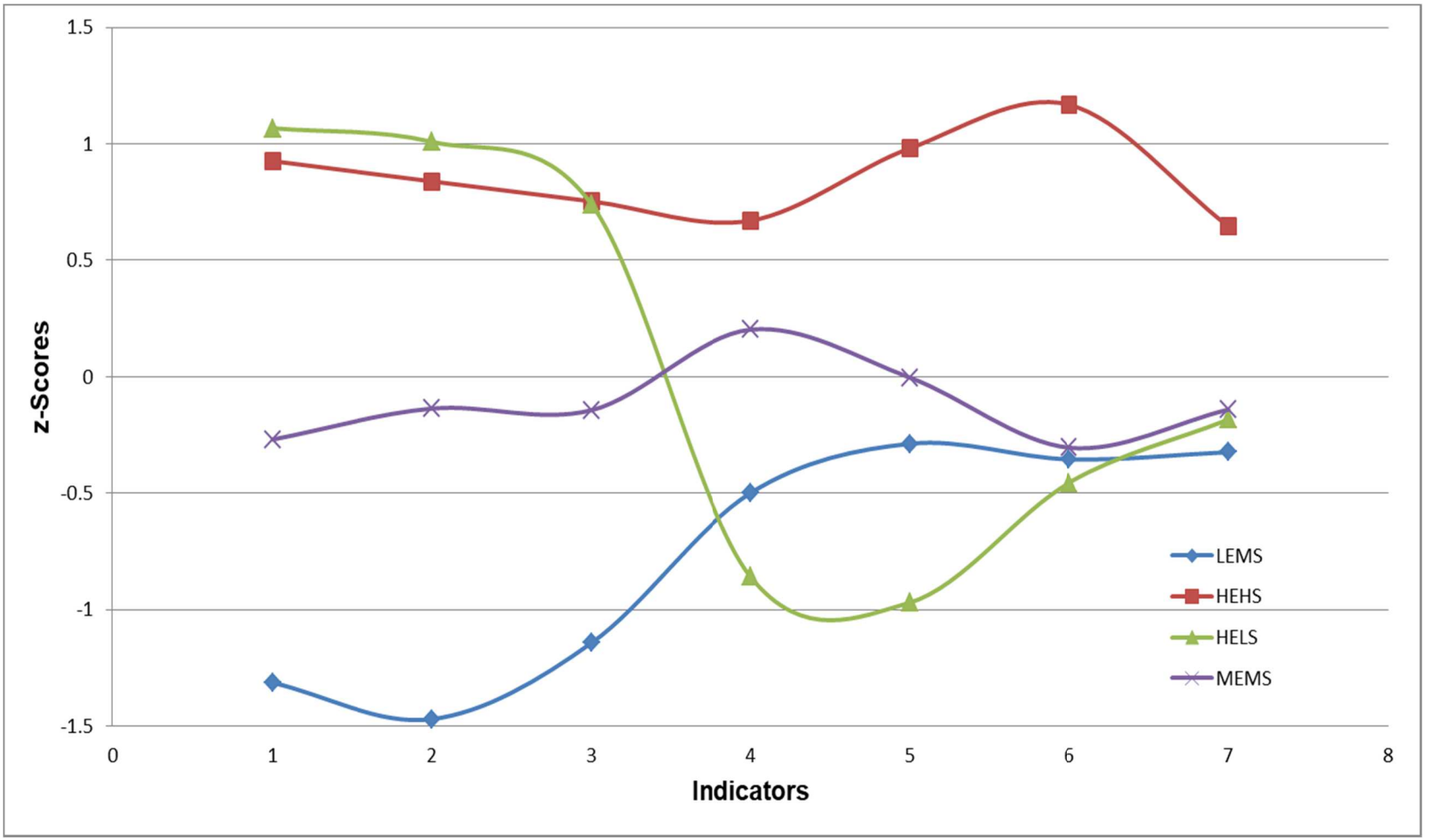

Figure 5: Latent Class Means of Family Empowerment Scale (1-3) and Family Support Scale (4-7)

Appendix B: Tables

Table 1

Model Fit Indices for Latent Class Analysis

	AIC	BIC	Entropy	LRT (Boot Strap)
2 Class	4815.232	4958.539	0.746	<.001
3 Class	4682.923	4876.221	0.768	<.001
4 Class	**4604.358**	**4847.646**	**0.782**	**<.001**
5 Class	4562.33	4855.609	0.786	<.001
6 Class	4538.349	4881.619	0.795	<.001

* A four class solution was selected

Table 2

z-Scores of Indicators by Class

Indicators	LEMS	HELS	HEHS	MEMS
FESFAMILY	-1.314	1.067	0.926	-0.27
FESSERVICE	-1.471	1.009	0.839	-0.137
FESCOMMUNITY	-1.144	0.741	0.753	-0.144
FSSFAMILY	-0.5	-0.859	0.67	0.202
FSSSPOUSE	-0.288	-0.97	0.981	-0.004
FSSSOCIAL	-0.355	-0.456	1.168	-0.305
FSSPROFESSIONAL	-0.324	-0.184	0.645	-0.141

* Low empower Med. Support = LEMS, High Empower Low Support = HELS, High Empower High Support = HEHS, Med. empower Med. Support = MEMS

Table 3

Transition Probabilities for Latent Variable

	LEMS T2	HELS T2	HEHS T2	MEMS T2
LEMS T1	0.668	0.053	0.000	0.278
HELS T2	0.232	0.461	0.074	0.233
HEHS T3	0.000	0.071	0.735	0.194
MEMS T4	0.020	0.038	0.231	0.711

Table 4

Covariate Transition Probabilities for Low Empowerment - Medium Support (Part 1 of 2)

	1 vs. 4			2 vs. 4			3 vs. 4		
Covariates	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*
Child Gender	0.23	2.42	0.93	-16.55	2.40	0.00	8.41	1.96	0.00
Mother Edu.	0.56	1.46	0.70	0.95	1.39	0.49	-0.30	0.00	999.00
Father Edu.	10.01	6.41	0.12	14.68	8.40	0.08	16.90	8.73	0.05
Housing Needs	-1.62	1.42	0.25	-0.74	0.41	0.07	-0.19	0.38	0.61
Transport Needs	-0.66	1.32	0.62	1.07	1.90	0.57	-4.72	1.23	0.00
Babysitter	-0.92	0.90	0.31	-0.65	0.50	0.19	-0.04	0.46	0.94
Ethnicity	-18.04	1.01	0.00	-1.21	0.00	999.00	-14.91	0.00	999.00
Dev. Diag.	4.49	5.56	0.42	-13.92	5.65	0.01	2.14	5.46	0.70
Speech Diag.	-3.05	2.83	0.28	-25.12	0.00	999.00	-0.29	0.00	999.00

Table 5

Covariate Transition Probabilities for Low Empowerment - Medium Support (Part 2 or 2)

	2 vs. 3			1 vs. 2			1 vs. 3		
Covariates	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*
Child Gender	-24.97	1.37	0.00	16.78	1.61	0.00	-8.18	0.87	0.00
Mother Edu.	1.25	1.39	0.37	-0.40	0.38	0.30	0.86	1.46	0.56
Father Edu.	-2.22	1.89	0.24	-4.67	5.36	0.38	-6.89	5.86	0.24
Housing Needs	-0.55	0.19	0.00	-0.88	1.27	0.49	-1.43	1.32	0.28
Transport Needs	5.79	1.23	0.00	-1.73	1.09	0.11	4.06	0.56	0.00
Babysitter	-0.61	0.15	0.00	-0.27	0.62	0.66	-0.88	0.69	0.20
Ethnicity	13.70	0.00	0.00	-16.83	1.01	0.00	-3.13	1.01	0.00
Dev. Diag.	-16.05	1.36	0.00	18.41	1.56	0.00	2.35	0.64	0.00
Speech Diag.	-24.84	0.00	0.00	22.07	2.83	0.00	-2.76	2.83	0.33

Table 6

Covariate Transition Probabilities for High Empowerment - Low Support (Part 1 of 2)

	1 vs. 4			2 vs. 4			3 vs. 4		
Covariates	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*
Child Gender	-0.96	2.64	0.72	-1.58	2.07	0.44	-4.20	2.51	0.09
Mother Edu.	-26.65	0.00	999.00	-0.60	0.69	0.38	4.08	2.45	0.10
Father Edu.	-70.31	1.79	0.00	-59.28	0.00	999.00	-35.18	0.00	999.00
Housing Needs	-2.31	1.46	0.11	9.87	1.26	0.00	33.19	2.04	0.00
Transport Needs	-10.41	1.63	0.00	0.40	1.08	0.71	1.53	1.14	0.18
Babysitter	-0.54	1.07	0.61	0.87	1.05	0.41	-0.18	2.02	0.93
Ethnicity	1.71	1.24	0.17	-10.59	1.39	0.00	-1.02	1.57	0.52
Dev. Diag.	0.96	4.47	0.83	2.47	3.89	0.53	-10.20	3.80	0.01
Speech Diag.	-22.08	4.36	0.00	-3.82	4.44	0.39	0.72	8.53	0.93

Table 7

Covariate Transition Probabilities for High Empowerment - Low Support (Part 2 of 2)

	2 vs. 3			1 vs. 2			1 vs. 3		
Covariates	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*
Child Gender	2.62	2.38	0.27	0.63	2.30	0.79	3.25	2.74	0.24
Mother Edu.	-4.68	2.90	0.11	-26.05	0.69	0.00	-30.73	2.45	0.00
Father Edu.	-24.10	0.00	0.00	-11.03	1.79	0.00	-35.12	1.79	0.00
Housing Needs	-23.32	1.16	0.00	-12.18	1.42	0.00	-35.50	2.11	0.00
Transport Needs	-1.14	1.18	0.34	-10.81	1.47	0.00	-11.94	1.65	0.00
Babysitter	1.06	1.80	0.56	-1.42	0.84	0.09	-0.36	1.89	0.85
Ethnicity	-9.57	1.77	0.00	12.30	1.32	0.00	2.73	1.52	0.07
Dev. Diag.	12.67	1.49	0.00	-1.51	2.11	0.47	11.16	2.08	0.00
Speech Diag.	-4.54	7.47	0.54	-18.26	1.45	0.00	-22.80	7.32	0.00

Table 8

Covariate Transition Probabilities for High Empowerment - High Support (Part 1 of 2)

	1 vs. 4			2 vs. 4			3 vs. 4		
Covariates	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*
Child Gender	-6.05	0.00	999.00	21.31	4.51	0.00	1.59	4.44	0.72
Mother Edu.	0.93	0.00	999.00	0.59	0.55	0.29	0.65	0.57	0.26
Father Edu.	-0.71	0.80	0.38	0.06	2.90	0.98	-0.08	0.81	0.92
Housing Needs	10.68	1.04	0.00	0.35	1.38	0.80	11.42	1.16	0.00
Transport Needs	0.67	2.27	0.77	-13.01	2.51	0.00	0.30	2.63	0.91
Babysitter	0.66	0.78	0.40	-0.21	0.88	0.81	0.07	0.87	0.93
Ethnicity	5.54	0.00	999.00	21.07	0.00	999.00	-0.81	2.91	0.78
Dev. Diag.	1.20	4.45	0.79	2.51	5.61	0.66	2.31	4.59	0.62
Speech Diag.	-4.06	0.00	999.00	-24.67	0.00	999.00	-23.33	1.59	0.00

Table 9

Covariate Transition Probabilities for High Empowerment - High Support (Part 2 of 2)

	2 vs. 3			1 vs. 2			1 vs. 3		
Covariates	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*
Child Gender	19.72	1.21	0.00	-27.35	4.51	0.00	-7.63	4.44	0.09
Mother Edu.	-0.06	0.34	0.87	0.34	0.55	0.54	0.29	0.57	0.62
Father Edu.	0.14	2.68	0.96	-0.77	2.60	0.77	-0.63	0.26	0.01
Housing Needs	-11.06	1.42	0.00	10.32	1.31	0.00	-0.74	0.33	0.03
Transport Needs	-13.31	1.26	0.00	13.69	0.96	0.00	0.38	0.68	0.58
Babysitter	-0.29	0.51	0.57	0.87	0.41	0.03	0.58	0.28	0.04
Ethnicity	21.88	2.91	0.00	-15.53	0.00	0.00	6.34	2.91	0.03
Dev. Diag.	0.20	3.11	0.95	-1.30	2.94	0.66	-1.11	0.52	0.03
Speech Diag.	-1.34	1.59	0.40	20.60	0.00	0.00	19.27	1.59	0.00

Table 10

Covariate Transition Probabilities for Medium Empowerment - Medium Support (Part 1 of 2)

	1 vs. 4			2 vs. 4			3 vs. 4		
Covariates	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*
Child Gender	-24.22	0.00	999.00	0.23	3.41	0.95	1.02	0.96	0.29
Mother Edu.	1.24	1.19	0.30	48.42	0.00	999.00	-0.11	0.46	0.81
Father Edu.	0.06	0.45	0.90	0.79	0.42	0.06	-1.14	0.79	0.15
Housing Needs	-18.70	1.22	0.00	-16.39	1.01	0.00	0.62	0.64	0.33
Transport Needs	-0.19	0.67	0.77	-0.31	0.68	0.65	-0.45	0.59	0.45
Babysitter	-7.82	1.36	0.00	-0.68	0.56	0.23	-0.01	0.50	0.98
Ethnicity	4.48	3.27	0.17	6.58	1.38	0.00	0.10	1.45	0.95
Dev. Diag.	1.17	6.50	0.86	-15.58	1.10	0.00	-0.07	0.96	0.94
Speech Diag.	6.02	3.08	0.05	2.90	5.40	0.59	1.04	1.16	0.37

Table 11

Covariate Transition Probabilities for Medium Empowerment - Medium Support (Part 2 of 2)

	2 vs. 3			1 vs. 2			1 vs. 3		
Covariates	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*	*B*	*S.E.*	*p*
Child Gender	-0.79	3.54	0.82	-24.45	3.41	0.00	-25.24	0.96	0.00
Mother Edu.	48.53	0.46	0.00	-47.19	1.19	0.00	1.35	1.25	0.28
Father Edu.	1.93	0.86	0.02	-0.73	0.52	0.16	1.19	0.85	0.16
Housing Needs	-17.01	1.06	0.00	-2.31	1.42	0.10	-19.32	1.22	0.00
Transport Needs	0.14	0.81	0.86	0.11	0.85	0.89	0.25	0.80	0.75
Babysitter	-0.67	0.68	0.33	-7.14	1.45	0.00	-7.81	1.40	0.00
Ethnicity	6.49	1.76	0.00	-2.10	3.46	0.54	4.39	3.39	0.20
Dev. Diag.	-15.51	1.33	0.00	16.75	6.54	0.01	1.23	6.48	0.85
Speech Diag.	1.86	5.47	0.73	3.12	6.07	0.61	4.98	3.05	0.10

Table 12

Class Mean Comparisons for the Peabody Picture Vocabulary test (1 of 4)

Pairs	*B*	*S.E.*	*p*
M11_M12	13.45	16.14	0.41
M11_M13	11.39	16.82	0.50
M11_M14	-31.85	15.44	0.04
M11_M21	-46.76	17.85	0.01
M11_M22	-48.09	16.56	0.00
M11_M23	-20.09	22.68	0.38
M11_M24	-46.86	16.42	0.00
M11_M31	-27.77	17.12	0.11
M11_M32	-71.04	15.49	0.00
M11_M33	-57.59	16.08	0.00
M11_M34	-29.19	15.91	0.07
M11_M41	-49.23	17.67	0.01
M11_M42	-61.07	15.48	0.00
M11_M43	-36.97	16.35	0.02
M11_M44	-61.86	15.21	0.00
M12_M13	-2.06	1.32	0.12
M12_M14	-45.29	2.70	0.00
M12_M21	-60.21	7.81	0.00
M12_M22	-61.54	3.80	0.00
M12_M23	-33.54	13.04	0.01
M12_M24	-60.31	4.26	0.00
M12_M31	-41.22	10.71	0.00
M12_M32	-84.48	1.55	0.00
M12_M33	-71.04	4.99	0.00
M12_M34	-42.63	3.31	0.00
M12_M41	-62.67	10.08	0.00
M12_M42	-74.52	1.63	0.00
M12_M43	-50.41	4.60	0.00
M12_M44	-75.31	3.69	0.00
M13_M14	-43.23	3.34	0.00

Class 1 = Low Empowerment - Medium Support (LEMS),
Class 2 = High Empowerment - Low Support (HELS),
Class 3 = High Empowerment - High Support (HEHS),
Class 4 = Medium Empowerment - Medium Support (MEMS)

Table 13

Class Mean Comparisons for the Peabody Picture Vocabulary test (2 of 4)

Pairs	*B*	*S.E.*	*p*
M13_M21	-58.15	7.83	0.00
M13_M22	-59.48	3.82	0.00
M13_M23	-31.48	12.15	0.01
M13_M24	-58.25	4.42	0.00
M13_M31	-39.16	11.25	0.00
M13_M32	-82.43	2.55	0.00
M13_M33	-68.98	5.46	0.00
M13_M34	-40.57	3.80	0.00
M13_M41	-60.61	10.60	0.00
M13_M42	-72.46	2.63	0.00
M13_M43	-48.35	4.85	0.00
M13_M44	-73.25	4.56	0.00
M14_M21	-14.91	8.17	0.07
M14_M22	-16.25	4.75	0.00
M14_M23	11.75	13.83	0.40
M14_M24	-15.02	4.98	0.00
M14_M31	4.07	10.82	0.71
M14_M32	-39.19	2.72	0.00
M14_M33	-25.75	5.41	0.00
M14_M34	2.66	4.01	0.51
M14_M41	-17.38	10.12	0.09
M14_M42	-29.23	2.71	0.00
M14_M43	-5.12	5.24	0.33
M14_M44	-30.02	3.86	0.00
M21_M22	-1.33	9.76	0.89
M21_M23	26.67	14.21	0.06
M21_M24	-0.10	4.45	0.98
M21_M31	18.99	11.55	0.10
M21_M32	-24.28	7.99	0.00
M21_M33	-10.83	9.24	0.24

Class 1 = Low Empowerment - Medium Support (LEMS),
Class 2 = High Empowerment - Low Support (HELS),
Class 3 = High Empowerment - High Support (HEHS),
Class 4 = Medium Empowerment - Medium Support (MEMS)

Table 14

Class Mean Comparisons for the Peabody Picture Vocabulary test (3 of 4)

Pairs	*B*	*S.E.*	*p*
M21_M34	17.58	8.37	0.04
M21_M41	-2.47	16.26	0.88
M21_M42	-14.31	7.98	0.07
M21_M43	9.80	8.97	0.28
M21_M44	-15.10	8.42	0.07
M22_M23	28.00	13.00	0.03
M22_M24	1.23	6.46	0.85
M22_M31	20.32	11.92	0.09
M22_M32	-22.95	4.29	0.00
M22_M33	-9.50	6.49	0.14
M22_M34	18.91	5.08	0.00
M22_M41	-1.13	10.10	0.91
M22_M42	-12.98	4.25	0.00
M22_M43	11.13	5.97	0.06
M22_M44	-13.77	5.58	0.01
M23_M24	-26.77	13.52	0.05
M23_M31	-7.68	18.57	0.68
M23_M32	-50.94	13.74	0.00
M23_M33	-37.50	14.60	0.01
M23_M34	-9.09	13.96	0.52
M23_M41	-29.13	18.60	0.12
M23_M42	-40.98	13.77	0.00
M23_M43	-16.87	13.77	0.22
M23_M44	-41.77	14.75	0.01
M24_M31	19.09	9.82	0.05
M24_M32	-24.18	4.54	0.00
M24_M33	-10.73	6.60	0.10
M24_M34	17.68	5.34	0.00
M24_M41	-2.36	13.94	0.87
M24_M42	-14.21	4.55	0.00

Class 1 = Low Empowerment - Medium Support (LEMS),
Class 2 = High Empowerment - Low Support (HELS),
Class 3 = High Empowerment - High Support (HEHS),
Class 4 = Medium Empowerment - Medium Support (MEMS)

Table 15

Class Mean Comparisons for the Peabody Picture Vocabulary test (4 of 4)

Pairs	*B*	*S.E.*	*p*
M24_M43	9.90	6.31	0.12
M24_M44	-15.00	5.31	0.01
M31_M32	-43.27	10.45	0.00
M31_M33	-29.82	11.17	0.01
M31_M34	-1.41	10.85	0.90
M31_M41	-21.45	16.69	0.20
M31_M42	-33.30	10.27	0.00
M31_M43	-9.19	11.58	0.43
M31_M44	-34.09	10.12	0.00
M32_M33	13.44	4.85	0.01
M32_M34	41.85	3.36	0.00
M32_M41	21.81	9.80	0.03
M32_M42	9.96	1.23	0.00
M32_M43	34.07	4.74	0.00
M32_M44	9.18	3.29	0.01
M33_M34	28.41	5.60	0.00
M33_M41	8.37	10.77	0.44
M33_M42	-3.48	4.97	0.48
M33_M43	20.63	5.92	0.00
M33_M44	-4.27	5.62	0.45
M34_M41	-20.04	10.38	0.05
M34_M42	-31.89	3.37	0.00
M34_M43	-7.78	5.55	0.16
M34_M44	-32.68	4.44	0.00
M41_M42	-11.85	9.78	0.23
M41_M43	12.26	10.90	0.26
M41_M44	-12.64	10.32	0.22
M42_M43	24.11	4.80	0.00
M42_M44	-0.79	3.29	0.81
M43_M44	-24.90	5.51	0.00

Class 1 = Low Empowerment - Medium Support (LEMS),
Class 2 = High Empowerment - Low Support (HELS),
Class 3 = High Empowerment - High Support (HEHS),
Class 4 = Medium Empowerment - Medium Support (MEMS)

Table 16

Class Mean Comparisons for the Expressive Language Subscale (1 of 4)

Pairs	*B*	*S.E.*	*p*
M11_M12	-18.71	8.80	0.03
M11_M13	45.39	8.72	0.00
M11_M14	-21.90	9.94	0.03
M11_M21	-11.41	21.62	0.60
M11_M22	-21.30	13.05	0.10
M11_M23	-15.17	20.01	0.45
M11_M24	-25.31	11.21	0.02
M11_M31	-34.34	12.26	0.01
M11_M32	-19.64	11.22	0.08
M11_M33	0.96	18.45	0.96
M11_M34	-5.25	26.53	0.84
M11_M41	-19.24	9.40	0.04
M11_M42	39.53	8.60	0.00
M11_M43	-10.66	14.44	0.46
M11_M44	-23.42	9.70	0.02
M12_M13	64.10	4.44	0.00
M12_M14	-3.19	6.03	0.60
M12_M21	7.30	17.28	0.67
M12_M22	-2.59	10.78	0.81
M12_M23	3.55	18.63	0.85
M12_M24	-6.60	8.02	0.41
M12_M31	-15.62	8.82	0.08
M12_M32	-0.93	6.97	0.89
M12_M33	19.68	16.74	0.24
M12_M34	13.47	25.78	0.60
M12_M41	-0.53	5.81	0.93
M12_M42	58.25	5.18	0.00
M12_M43	8.06	11.94	0.50
M12_M44	-4.71	5.28	0.37
M13_M14	-67.29	6.60	0.00

Class 1 = Low Empowerment - Medium Support (LEMS),
Class 2 = High Empowerment - Low Support (HELS),
Class 3 = High Empowerment - High Support (HEHS),
Class 4 = Medium Empowerment - Medium Support (MEMS)

Table 17

Class Mean Comparisons for the Expressive Language Subscale (2 of 4)

Pairs	*B*	*S.E.*	*p*
M13_M21	-56.80	17.38	0.00
M13_M22	-66.69	10.28	0.00
M13_M23	-60.56	18.89	0.00
M13_M24	-70.70	8.02	0.00
M13_M31	-79.73	8.68	0.00
M13_M32	-65.03	7.98	0.00
M13_M33	-44.43	16.73	0.01
M13_M34	-50.64	25.78	0.05
M13_M41	-64.63	5.98	0.00
M13_M42	-5.86	4.30	0.17
M13_M43	-56.05	11.91	0.00
M13_M44	-68.81	5.36	0.00
M14_M21	10.49	18.06	0.56
M14_M22	0.60	11.41	0.96
M14_M23	6.74	19.42	0.73
M14_M24	-3.41	9.27	0.71
M14_M31	-12.43	9.97	0.21
M14_M32	2.26	9.37	0.81
M14_M33	22.87	17.44	0.19
M14_M34	16.66	26.17	0.52
M14_M41	2.66	7.73	0.73
M14_M42	61.44	6.80	0.00
M14_M43	11.25	12.82	0.38
M14_M44	-1.52	7.71	0.84
M21_M22	-9.89	20.71	0.63
M21_M23	-3.76	26.76	0.89
M21_M24	-13.90	18.83	0.46
M21_M31	-22.92	18.32	0.21
M21_M32	-8.23	18.12	0.65
M21_M33	12.38	24.12	0.61

Class 1 = Low Empowerment - Medium Support (LEMS),
Class 2 = High Empowerment - Low Support (HELS),
Class 3 = High Empowerment - High Support (HEHS),
Class 4 = Medium Empowerment - Medium Support (MEMS)

Table 18

Class Mean Comparisons for the Expressive Language Subscale (3 of 4)

Pairs	*B*	*S.E.*	*p*
M21_M34	6.17	31.16	0.84
M21_M41	-7.83	18.89	0.68
M21_M42	50.95	17.64	0.00
M21_M43	0.76	19.69	0.97
M21_M44	-12.01	17.42	0.49
M22_M23	6.14	21.88	0.78
M22_M24	-4.01	12.60	0.75
M22_M31	-13.03	12.47	0.30
M22_M32	1.66	12.84	0.90
M22_M33	22.27	19.21	0.25
M22_M34	16.06	27.44	0.56
M22_M41	2.06	10.74	0.85
M22_M42	60.84	10.26	0.00
M22_M43	10.65	15.03	0.48
M22_M44	-2.12	10.44	0.84
M23_M24	-10.15	19.87	0.61
M23_M31	-19.17	20.46	0.35
M23_M32	-4.47	19.45	0.82
M23_M33	16.13	28.59	0.57
M23_M34	9.92	27.76	0.72
M23_M41	-4.07	19.38	0.83
M23_M42	54.70	18.78	0.00
M23_M43	4.51	24.05	0.85
M23_M44	-8.26	18.87	0.66
M24_M31	-9.02	10.58	0.39
M24_M32	5.67	10.29	0.58
M24_M33	26.28	17.97	0.14
M24_M34	20.07	26.60	0.45
M24_M41	6.07	9.03	0.50
M24_M42	64.85	8.29	0.00

Class 1 = Low Empowerment - Medium Support (LEMS),
Class 2 = High Empowerment - Low Support (HELS),
Class 3 = High Empowerment - High Support (HEHS),
Class 4 = Medium Empowerment - Medium Support (MEMS)

Table 19

Class Mean Comparisons for the Expressive Language Subscale (4 of 4)

Pairs	*B*	*S.E.*	*p*
M24_M43	14.66	13.51	0.28
M24_M44	1.89	8.64	0.83
M31_M32	14.69	5.72	0.01
M31_M33	35.30	17.97	0.05
M31_M34	29.09	27.34	0.29
M31_M41	15.10	8.65	0.08
M31_M42	73.87	9.03	0.00
M31_M43	23.68	14.06	0.09
M31_M44	10.91	8.67	0.21
M32_M33	20.61	19.21	0.28
M32_M34	14.39	26.40	0.59
M32_M41	0.40	9.00	0.97
M32_M42	59.18	8.40	0.00
M32_M43	8.99	13.42	0.50
M32_M44	-3.78	8.36	0.65
M33_M34	-6.21	38.76	0.87
M33_M41	-20.21	17.11	0.24
M33_M42	38.57	17.28	0.03
M33_M43	-11.62	22.44	0.61
M33_M44	-24.39	16.77	0.15
M34_M41	-13.99	26.07	0.59
M34_M42	44.78	25.45	0.08
M34_M43	-5.41	26.07	0.84
M34_M44	-18.18	26.27	0.49
M41_M42	58.78	6.41	0.00
M41_M43	8.59	12.76	0.50
M41_M44	-4.18	6.62	0.53
M42_M43	-50.19	11.94	0.00
M42_M44	-62.96	5.72	0.00
M43_M44	-12.77	12.70	0.32

Class 1 = Low Empowerment - Medium Support (LEMS),
Class 2 = High Empowerment - Low Support (HELS),
Class 3 = High Empowerment - High Support (HEHS),
Class 4 = Medium Empowerment - Medium Support (MEMS)

Table 20

Class Mean Comparisons for the Emergent Literacy Measure (1 of 4)

Pairs	*B*	*S.E.*	*p*
M11_M12	1.59	2.11	0.45
M11_M13	-9.91	1.57	0.00
M11_M14	-0.73	1.32	0.58
M11_M21	0.38	1.57	0.81
M11_M22	-2.38	1.21	0.05
M11_M23	-1.98	2.28	0.39
M11_M24	-7.32	1.98	0.00
M11_M31	-0.10	3.92	0.98
M11_M32	-1.56	1.21	0.20
M11_M33	0.04	1.04	0.97
M11_M34	-2.75	1.15	0.02
M11_M41	-6.71	1.36	0.00
M11_M42	-5.95	1.94	0.00
M11_M43	-0.79	2.49	0.75
M11_M44	-1.08	0.95	0.25
M12_M13	-11.50	2.41	0.00
M12_M14	-2.32	2.23	0.30
M12_M21	-1.21	2.32	0.60
M12_M22	-3.96	2.29	0.08
M12_M23	-3.57	3.06	0.24
M12_M24	-8.91	2.89	0.00
M12_M31	-1.69	4.46	0.71
M12_M32	-3.14	2.12	0.14
M12_M33	-1.55	2.13	0.47
M12_M34	-4.34	2.23	0.05
M12_M41	-8.29	2.25	0.00
M12_M42	-7.53	2.71	0.01
M12_M43	-2.38	2.91	0.41
M12_M44	-2.67	2.12	0.21
M13_M14	9.18	1.76	0.00

Class 1 = Low Empowerment - Medium Support (LEMS),
Class 2 = High Empowerment - Low Support (HELS),
Class 3 = High Empowerment - High Support (HEHS),
Class 4 = Medium Empowerment - Medium Support (MEMS)

Table 21

Class Mean Comparisons for the Emergent Literacy Measure (2 of 4)

Pairs	*B*	*S.E.*	*p*
M13_M21	10.29	1.89	0.00
M13_M22	7.53	1.74	0.00
M13_M23	7.93	2.73	0.00
M13_M24	2.59	2.38	0.28
M13_M31	9.81	4.12	0.02
M13_M32	8.36	1.73	0.00
M13_M33	9.95	1.68	0.00
M13_M34	7.16	1.70	0.00
M13_M41	3.21	1.82	0.08
M13_M42	3.96	2.37	0.09
M13_M43	9.12	2.43	0.00
M13_M44	8.83	1.59	0.00
M14_M21	1.11	1.68	0.51
M14_M22	-1.64	1.48	0.27
M14_M23	-1.25	2.47	0.61
M14_M24	-6.59	2.11	0.00
M14_M31	0.63	4.07	0.88
M14_M32	-0.82	1.48	0.58
M14_M33	0.77	1.35	0.57
M14_M34	-2.02	1.43	0.16
M14_M41	-5.97	1.61	0.00
M14_M42	-5.22	2.15	0.02
M14_M43	-0.06	2.57	0.98
M14_M44	-0.35	1.38	0.80
M21_M22	-2.75	1.68	0.10
M21_M23	-2.36	2.60	0.36
M21_M24	-7.70	2.28	0.00
M21_M31	-0.48	3.99	0.90
M21_M32	-1.93	1.66	0.24
M21_M33	-0.34	1.52	0.83

Class 1 = Low Empowerment - Medium Support (LEMS),
Class 2 = High Empowerment - Low Support (HELS),
Class 3 = High Empowerment - High Support (HEHS),
Class 4 = Medium Empowerment - Medium Support (MEMS)

Table 22

Class Mean Comparisons for the Emergent Literacy Measure (3 of 4)

Pairs	*B*	*S.E.*	*p*
M21_M34	-3.13	1.61	0.05
M21_M41	-7.08	1.73	0.00
M21_M42	-6.33	2.25	0.01
M21_M43	-1.17	2.60	0.65
M21_M44	-1.46	1.46	0.32
M22_M23	0.40	2.35	0.87
M22_M24	-4.94	1.81	0.01
M22_M31	2.27	4.01	0.57
M22_M32	0.82	1.39	0.56
M22_M33	2.42	1.31	0.07
M22_M34	-0.38	1.34	0.78
M22_M41	-4.33	1.59	0.01
M22_M42	-3.57	2.06	0.08
M22_M43	1.59	2.66	0.55
M22_M44	1.30	1.16	0.26
M23_M24	-5.34	2.48	0.03
M23_M31	1.88	4.60	0.68
M23_M32	0.43	2.37	0.86
M23_M33	2.02	2.32	0.38
M23_M34	-0.77	2.34	0.74
M23_M41	-4.73	2.57	0.07
M23_M42	-3.97	2.73	0.15
M23_M43	1.19	3.92	0.76
M23_M44	0.90	2.16	0.68
M24_M31	7.22	4.30	0.09
M24_M32	5.76	2.04	0.01
M24_M33	7.36	2.06	0.00
M24_M34	4.57	1.95	0.02
M24_M41	0.61	2.39	0.80
M24_M42	1.37	2.58	0.60

Class 1 = Low Empowerment - Medium Support (LEMS),
Class 2 = High Empowerment - Low Support (HELS),
Class 3 = High Empowerment - High Support (HEHS),
Class 4 = Medium Empowerment - Medium Support (MEMS)

Table 23

Class Mean Comparisons for the Emergent Literacy Measure (4 of 4)

Pairs	*B*	*S.E.*	*p*
M24_M43	6.53	3.26	0.05
M24_M44	6.24	1.86	0.00
M31_M32	-1.45	3.89	0.71
M31_M33	0.15	4.06	0.97
M31_M34	-2.65	3.92	0.50
M31_M41	-6.60	4.09	0.11
M31_M42	-5.84	4.29	0.17
M31_M43	-0.69	4.38	0.88
M31_M44	-0.98	3.96	0.81
M32_M33	1.60	1.34	0.23
M32_M34	-1.20	1.22	0.33
M32_M41	-5.15	1.57	0.00
M32_M42	-4.39	2.09	0.04
M32_M43	0.76	2.63	0.77
M32_M44	0.47	1.17	0.69
M33_M34	-2.79	1.27	0.03
M33_M41	-6.75	1.44	0.00
M33_M42	-5.99	1.91	0.00
M33_M43	-0.83	2.74	0.76
M33_M44	-1.12	0.98	0.25
M34_M41	-3.95	1.55	0.01
M34_M42	-3.20	2.06	0.12
M34_M43	1.96	2.63	0.46
M34_M44	1.67	1.13	0.14
M41_M42	0.76	2.10	0.72
M41_M43	5.92	2.53	0.02
M41_M44	5.62	1.36	0.00
M42_M43	5.16	3.40	0.13
M42_M44	4.87	1.87	0.01
M43_M44	-0.29	2.65	0.91

Class 1 = Low Empowerment - Medium Support (LEMS),
Class 2 = High Empowerment - Low Support (HELS),
Class 3 = High Empowerment - High Support (HEHS),
Class 4 = Medium Empowerment - Medium Support (MEMS)

VITA

Clinton Lyle Broadbent

Candidate for the Degree of

Doctor of Philosophy

Dissertation: EXPLORING THE RELATIONSHIP OF RESOURCES ON FAMILIES THAT HAVE A CHILD WITH A DISABILITY: A LATENT TRANSITION ANALYSIS

Major Field: Human Development and Family Science

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in Human Development and Family Science at Oklahoma State University, Stillwater, Oklahoma in July, 2018.

Completed the requirements for the Master of Science in Marriage and Family Therapy at Utah State University, Logan, Utah in 2013.

Completed the requirements for the Bachelor of Arts in Family, Consumer, and Human Development at Utah State University, Logan, Utah in 2009.

Experience:

Instructor of Record*,* Southern Utah University, Cedar City Utah. (Fall, 2018 – Current)

Instructor of Record*,* Oklahoma State University, Stillwater, Oklahoma. (Fall, 2014 – Spring, 2018)

Graduate Teaching Assistant, Oklahoma State University, Stillwater, Oklahoma. (Fall, 2013 – Spring, 2018)

Graduate Teaching Assistant, Utah State University, Logan, Utah (Spring, 2011 – Fall, 2012)

Professional Memberships:

- National Council on Family Relations
- American Association for Marriage and Family Therapy