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Poverty and Special Education: Disproportionality and Unmet Student Needs

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POVERTY AND SPECIAL EDUCATION:

DISPROPORTIONALITY AND UNMET STUDENT NEEDS

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Abstract

In recent years, policy concerns have regarded over-representation of minority students in special education as a problem in schools across the United States. While over-representation may be an issue for some racial groups, there is a lurking problem of inequality in the accessibility of education for certain students. The literature reviews various topics related to the impact poverty can have on learning trajectories including intersecting racial inequalities and disproportionality in special education, successful interventions in high-poverty schools, and limits to accessing special education services. The literature highlights the potentially unmet needs of students living in poverty of varying racial and ethnic groups and the trends in student services based on school-wide and individual demographics.

CHAPTER I: INTRODUCTION

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Every Monday, I like to ask students about what they did over the weekend in order to facilitate conversation and build rapport. Often, I hear that they stayed inside all weekend to watch their younger siblings or that they couldn't sleep because they shared a couch as a bed with their sibling. Many students have repeatedly had bedbugs, resulting in uncontrollable itching during reading lessons. Other students have reported that they moved for an additional time in the middle of the school year. Most of my students have parents that are not home when they are awake to help them with their homework because they are working odd hours and multiple jobs. All of these are common experiences for my students who receive special education services under the category of Specific Learning Disabilities (SLD). It is uncommon for them to get a full night of sleep and common for them to be living temporarily with an uncle or grandma; or to have infestations of lice, bedbugs, or mice in their homes. Many of these disruptive events and conditions are the result of poverty.

Students in schools around the nation face high levels of poverty each day. According to the National Center for Children in Poverty (NCCP), approximately 19% of children under age 18 in the United States are living below the threshold of poverty and another 22% are low income or "near poor" (Koball & Jiang, 2018). In the educational setting in which I teach, there is a large portion of students (over 90%) living in poverty as measured by the number of students who qualify for free and reduced price lunch based on their family's income. There are different ways to define poverty and to identify the children it impacts, but free and reduced lunch rates are commonly used in studies and reports when it comes to children in schools. In my school setting, I have noticed that many of the students who qualify for free and reduced price lunch

also qualify under the special education disability category of SLD and receive special education services.

SLD is a high incidence, school diagnosed disability, meaning that it is not a medical diagnosis, but rather an educational label commonly given by special education staff in the school setting following an evaluation. While the educators who determine if a student is eligible for the disability category use their best professional judgment, there are some factors to be considered that make the decisions more complicated. The assessment process used for determining if a student falls into the learning disability category requires that the team rules out the environmental impact on learning as a primary interfering factor for educational deficits. According to the statutes, the Minnesota Department of Education (MDE), Minnesota Rule 3525.1341, subpart 3, states that the underachievement of a child must not be the "primary result of …environmental, cultural, or economic influences, limited English proficiency, or a lack of appropriate instruction in reading or math" when determining eligibility for SLD (2010, p.6). Based on this rule, all evaluations for SLD must consider a student's history of educational attainment as well as home environment in order to eliminate their influences as primary causes for limiting that child's academic abilities.

The effects of poverty are widely researched. There are many studies linking poverty to student underachievement (Carlisle et al., 2013; Cutuli et al., 2013; Duncan et al., 2012; and Herbers et al., 2012). Poverty is generally understood to have a causal relationship with negative student outcomes considering academic readiness (Jordan et al., 2006) and language development (Stanton-Chapman et al., 2004). Additional researched long-term impacts of poverty include literature on criminal records in adulthood, homelessness, etc. (Duncan et al., 2007). Other research articles connect negative impacts of poverty to reduced access to

appropriate education (Hibel et al., 2010; Mason-Williams, 2015). Homelessness and high residential mobility are additional environmental impacts that can result from poverty. Studies have shown that students impacted by homelessness tend to not have equal or adequate education based on their assessed needs (Cutuli et al., 2013; Zima et al., 1998).

Some research concludes that all of these negative impacts related to poverty lead to a disproportionate representation of students labeled as having an educational disability. Additional studies focus more on the disproportionate representation of certain racial/ethnic groups who qualify for special education and suggest that the overrepresentation is closely linked to racial inequality and racial bias. A lot of policy concern has gone into the issue of over-representation of certain races in some disability categories in recent years, specifically in the areas of emotional and cognitive disabilities. The National Education Association (NEA) names some of the different types of overrepresentation including, national, state, and district level over-representation of culturally and linguistically diverse (CDL) students as disabled and significant differences in proportions of CDL students in more restrictive settings or segregated special education programs (NEA, 2007, p. 6). Coutinho et al. (2002) and Skiba et al. (2005) reported a link between African American males and Native American students and an overrepresentation in the special education categories of Developmental Cognitive Disability (DCD) and Emotional/Behavioral Disability (EBD). While these are different disability categories than SLD, EBD and DCD are also school diagnosed disabilities, and evidence of overrepresentation in these categories might have important implications for the representation of students who qualify under the school diagnosed disability category of SLD.

Based on the numerous links poverty has to student educational outcomes, my research is aimed at discovering how poverty and resulting environmental factors impact student learning

and potentially student referrals to special education for learning disabilities. By looking more closely at the demographic variables for those who are struggling in school or are referred to special education under the disability category of SLD, a category in which environmental factors are to be ruled out as primary interfering factors to educational progress, I can address some of my questions. Are students who have learning difficulties from low-income families in poverty living with learning disabilities or are the learning difficulties these students are having simply a result of poverty and the resulting environment? Conversely, are students who truly have learning disabilities and living in poverty getting the appropriate services? Zima et al. (1998) indicate that high- mobility is a barrier to appropriate services for these students. Are current strategies of early intervention effective or is there more that we should be doing as educators to support at-risk students and reduce special education referrals? How do we ensure high quality education for students in high poverty areas with or without special education academic needs based on the findings?

Subtopics in my research for this literature review will include topics of disproportionate representation of students in special education who live in poverty, the effectiveness of programs like Head Start that already exist to combat the impacts of poverty, and the intersectional barriers of poverty, racial inequality and English language learning for students struggling in school. Some of the problems that seemingly result from poverty or are related to the environmental factors associated with poverty may be difficult to separate from each other, but it is important to examine the issues impacting children in order to understand what research can best be utilized and applied to reduce the impacts of poverty on learning. Additional topics related to children limited by poverty include racial inequality, as it is linked to poverty in the United States.

Data discussions found in the literature review are intended to support educators in making more informed decisions about students in high-poverty schools or from environments plagued by the impacts of poverty. Since there is evidence to suggest that poverty impacts educational achievement, it is important to consider studies that have looked at this issue and have addressed it at different educational stages. Studies included in this literature review answer questions related to early childhood interventions, pre-referral strategies, interventions generalized in high-poverty schools, as well as questions associated with racial and income inequality as it relates to educational services provided to students. In consideration of all environmental factors as required during an initial SLD evaluation for special education, educators can apply the information from this literature review to their present school setting and specific student population .The synthesis of this information will help them make more informed eligibility decisions. How do we eliminate poverty as a primary interfering factor to learning; and is that the best decision for the child for whom we are considering learning disabled?

Overview of literature Reviewed

This thesis reviews literature found in searches throughout various academic journals via the databases ERIC, JSTOR, and SAGE Journals. The articles reviewed relate to students in high-poverty schools, students who have learning difficulties, children who participate in some form of intervention program, or children who have risk factors related to poverty and/or racial inequality. The outlined topics found in the search are: poverty correlated with underachievement, interventions designed to support low- income students, early-childhood intervention services, limits to the access of special education for certain students, and issues impacting ethnic minority students with learning difficulties.

Chapter two is divided into five sections. The first section highlights poverty as a risk factor for learning trajectories and articles were found in educational journals such as Educational Researcher and Child Development using “poverty and learning”, “special education and poverty”, “academic achievement trajectories”, and “at-risk students” as some of the search terms. This section explicitly focuses on poverty as a causal factor for students who are at risk for underachievement in academic areas.

The next section in chapter two is dedicated to intervention strategies for low-income students and those in high-poverty schools. Search terms used for this section included “high-poverty schools”, low-income”, and “early interventions”. Articles used in this section applied information about students in low-achieving and high-poverty schools and look at reducing the impact of poverty through various intervention strategies. Articles used in this section were found in journals such as American Educational Research Journal and Journal of Learning Disabilities.

In the third section of chapter two, the articles mainly reviewed trends related to early intervention services that are commonly used among children who are at a higher risk of underachievement for reasons such as poverty. Search terms used for this section included “early intervention”, “Head Start Program”, “inclusive early intervention”, “effectiveness of early intervention”. Topics of Early Childhood Education and Child Youth Care Forums were two of the publications where articles were found for this section.

Chapter two, part four, also includes a review of articles related to the review of the accessibility of special education. This portion reviews literature that suggests there are some populations of students who are actually underrepresented in special education and may prove to

have more educational needs that are not being met. Articles in this section were obtained from journals like Sociology of Education and the Journal of Educational Research to address more broad societal and educational trends. Some of the search terms used for finding articles in this section were “English Language”, “high-poverty schools”, and “disproportionate representation”.

In the final section of chapter two, the articles focus on the intersection of racial disproportionality and poverty in special education. Some of the searched terms were “disproportionality”, “over-representation”, “under-representation”, “poverty and learning disabilities”, and “demographics and special education”. The articles were found in journals specifically related to special education such as Exceptional Children, Remedial and Special Education, and Journal of Special Education.

CHAPTER II: LITERATURE REVIEW

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Poverty as a Risk Factor for Learning Trajectories

A growing body of research has indicated that poverty and related environmental circumstances are associated with lower early reading skills and overall academic achievement. Research done by Herbers et al. (2012), titled *Early reading skills and academic achievement trajectories of students facing poverty, homelessness, and high residential mobility,* provides evidence to support the findings, as well as information about what may serve as a protective factor against the affects of poverty in future academic achievement. Herbers et al. (2012) hypothesized that high residential mobility and homelessness, eligibility for free or reduced priced meals, and early oral reading scores predicted levels of achievement for students. They noted that "risk status predicted differences in math achievement trajectories beyond prior achievement levels" (p. 239). Results of the study showed that the lowest achieving group, previously categorized as "the group with the highest risk" based on poverty level, demonstrated results consistent with the authors' hypothesis and previous related research on the topic. While the Herbers et al. study was limited to only one large school district in Minnesota (Minneapolis Public Schools), the findings strengthened the argument that more severe forms of poverty have increased negative and long term impacts on student academic success.

Components of the Herbers et al. (2012) study offered potential in the area of discovering protective factors for students at a high risk for low academic achievement based on poverty status. The authors used district data that analyzed and categorized students into four main groups based on their eligibility for the National School Meals Program or Homeless and Highly Mobile (HHM) services. Students eligible for free meals (family income below 130% of the poverty line) were included in the free meal (FRE) category and students who qualified for

reduced priced meals (family income between 130% and 185% of the poverty line) were in the reduced priced meals (RPM) category (Herbers et al., 2012). Children in the study qualified for HHM services if they lived in a non-permanent residence, on the street, in an abandoned building or other inadequate accommodations, doubled up with friends and family because they could not afford housing, or due to frequent changes of residence (Herbers et al., 2012, p. 368). Students who were not in one of the three stated categories were in the general (coded as GEN) category (Herbers et al., 2012). The team collected fall reading data from third through eighth grade students each year from 2005 through 2009 and compared information from the students' first grade oral reading assessment (ORA) to determine if the ORA served as an early indicator of academic risk and as a moderator of risks for later learning (Herbers et al., 2012). Researchers hinted that the methods used in this study could be utilized in districts around the nation to determine the potential of generalized results.

The authors found that the most severe forms of poverty resulted in the lowest achievement levels, as evidenced by HHM students having the lowest average achievement levels followed by the FRE group, the RPM group, and the GEN group in respective order (Herbers et al., 2012, p. 369). Additional results of the study indicated that "students with higher first grade ORA scores had higher math achievement scores in third grade and showed a less rapid deceleration in math achievement through eighth grade" (Herbers et al., 2012, p. 369). The results underscored the importance of early ORA scores as a strong predictive factor in later academic achievement. More optimistically, Herbers et al. (2012) suggested that early reading skills were a protective factor for students at high risk due to poverty. Higher ORA scores predicted greater results in the HHM and FRE groups as opposed to the GEN and RPM groups for higher average reading achievement in later time points (p. 370). In finding this, Herbers et

al. (2012) suggested that early reading achievement was even more important than previously expected for students who were at higher levels of risk due to poverty.

Cutuli et al. (2013), further analyzed risks associated with homelessness and high residential mobility (HHM) status in their study titled *Academic achievement trajectories of homeless and highly mobile students: Resilience in the context of chronic and acute risk.* Cutuli et al. (2013) questioned whether HHM students had increased risks beyond those associated with poverty and whether the HHM status was "related to lower levels of initial achievement beginning in third grade and differential growth among children identified as HHM" (p. 842). The authors exposed different approaches to viewing the effects of homelessness by acknowledging the potential for acute and chronic risk as separate categories (Cutuli et al., 2013). The study ultimately inquired whether the timing of homelessness in a child's life made a difference in long-term academic achievement.

Student data from the Minneapolis Public School (MPS) District from 2005-2010 provided Cutuli et al. (2013) with information that examined the impacts of HHM status at various points in students' educational careers. Cutuli et al. (2013) coded students into four categories. Students categorized in the HHM group had family that reported three or more changes in residence in a one year period. Students in the FM group qualified for free meals under the National School Lunch Program and students in the RM group qualified for reduced priced meals. The GEN group encompassed students not included in one of the other three categories (Cutuli et al., 2013, p. 845). By grouping students into risk categories, the authors determined which effects impacted students facing poverty and more specifically impacted those in the HHM group, who were hypothesized to be more at-risk for academic failure.

Cutuli et al. found that the results varied between math and reading achievement (2013, p. 849). The authors also discovered that HHM status was a "substantial risk" for lower academic achievement as HHM students performed lower than the lowest income group. This demonstrated that students who were homeless or demonstrated high residential mobility were at greater risk than students who lived in poverty and were not homeless or highly mobile (p. 853). The data additionally revealed that the achievement gaps in reading and math widened over time and did not narrow at any point (Cutuli et al., 2013, p. 853). Further analysis of the data suggested that acute affects of homelessness also existed. Students who experienced HHM status exhibited lower standardized test scores in both reading and math in the fall following their HHM experience (Cutuli et al., 2013, p. 854). Although the authors acknowledged that many students who experienced the impacts of poverty and homelessness succeeded (45% showed academic resilience), the study highlighted the importance of providing interventions to students who were at high risk for the chronic and acute impacts of homelessness (Cutuli et al., 2013, p. 854) as "HHM represents multiple risks to development while constraining a child's ability to adapt" (p. 855). While some students succeeded in the face of adversity, the authors called for a closer look at additional academic supports for students who appeared to have greater risk for academic failure.

Based on the notion that risks for students living in poverty also included risks for future problems in language development, Stanton-Chapman et al. (2004) researched various potential risk factors to demonstrate the importance of screening at-risk students for language impairments to increase early intervention efforts. While the authors explored some of the physical risk factors experienced by students living in poverty, they ultimately wanted to discover the prevalence and cumulative effects on language development. The study targeted information

from boys and girls at age three (Stanton-Chapman et al., 2004, p. 229). Information was gathered by electronically linking birth certificate records and records of three-year-old children enrolled in a Head Start Program in Tennessee born between 1991 and 1997. These children had been previously screened for language and behavioral issues (Stanton-Chapman et al., 2004, p. 230).

The authors found that the children enrolled in Head Start were exposed to an average of 2.3 birth risk factors (Stanton-Chapman et al., 2004, p. 231). They also noted that the number of children enrolled in Head Start with three or more risk factors was 39.2% (Stanton-Chapman et al., 2004, p. 231). This data suggested that students who qualified for Head Start, a program that targets children of low-income families, were more likely exposed to more than one risk factor. In addition, 94% of the children in the Head Start sample were exposed to at least one risk factor at birth (Stanton-Chapman et al., 2004, p. 233). Stanton-Chapman et al. (2004) successfully linked increased exposure to risk factors with children eligible for Head Start, assumingly due to poverty.

Additionally, the authors found that language scores for students living in poverty were significantly lower than the language scores of children in the normative sample (Stanton-Chapman et al., 2004, p. 233). The authors noted that as their risk scores increased, the language scores decreased for the low-income sample (Stanton-Chapman et al., 2004, p. 234). These findings supported the hypothesis and information from previous studies that cumulative risk factors due to poverty correlated with language disorders. The authors recommended more studies with larger samples in order to generalize the results to the population at large. The authors admitted that the majority of the students in the sample were African-American. Stanton-

Chapman et al. (2004) speculated that early intervention services for low-income students exposed to more than one environmental risk factor may help prevent later language disabilities.

Willoughby et al. (2017) recognized that research showed how poverty undermines skills needed for academic readiness (p. 359). The authors viewed poverty, not as a single causal variable, but explained that environmental situations caused by poverty had the potential to impact executive functioning (EF) skills in children (Willoughby et al., 2017, p. 359). EF was defined as a broad set of cognitive abilities used for problem-solving and self-management. Researchers then reviewed EF as a potential predictor for later learning problems. The authors considered teacher ratings of academic readiness, as opposed to academic achievement tests, to measure the association with EF skills. Willoughby et al. (2017) questioned whether a sub-group of children aged three to five could be identified by the characterization of low EF and slow rates of change in EF. They also wondered if this same group of children would exhibit impairments in academic readiness for kindergarten when compared to peers with typical EF skills. The authors additionally wanted to test whether other known predictors of academic readiness accounted for any differences in EF skills (Willoughby et al., 2017, p. 361).

Willoughby et al. used data from families who lived in eastern North Carolina and central Pennsylvania, areas of known high-poverty rates (2017). The number of families that fully participated in the study was 1,121. Children were assessed prior to enrollment in kindergarten and scheduled home visits were conducted beginning when children were two months old. Teacher ratings of student academic ability were given in the fall of childrens' kindergarten year and assessments of academic achievement were given in the spring of their kindergarten year. Multiple EF assessments were used on each of the children in order to compare ratings.

Key findings in the study revealed that individual differences in EF scores were associated with measures of academic readiness in kindergarten (Willoughby et al., 2017, p. 364). Additionally, EF differences correlated with demographic characteristics including household income to needs ratio, parental education, and race and cognitive factors. The authors also found that socioeconomic status and indicators of general cognitive functioning were as strongly correlated with academic readiness indicators as measures of EF (Willoughby et al., 2017, p. 364). The authors additionally noted that children's EF scores linearly increased from the age of three to five. The results showed that approximately nine percent of children with low EF skills did not demonstrate improvements between ages three and five, which was considered typical and expected of their age. These same children displayed large differences in kindergarten academic functioning when compared with peers after control of demographic and cognitive variables (Willoughby et al., 2017, p. 368). The authors concluded there was a large overlap among children who demonstrated difficulty in EF improvements in early childhood and their risk for learning problems when they entered school. The authors indicated that future research should target the number of students who qualify for special education services compared with the rate of students with EF difficulties.

Jordan et al. (2006) investigated math achievement among 411 kindergarten students, comparing middle and low-income students from six schools across four separate points in time. The authors focused specifically on number-sense skills. They controlled for gender, age, and reading skills, as well as income level. The authors hypothesized that low-income students would begin school with lower levels of mathematics achievement and wanted to find out if the rate of growth in skills over time matched that of middle-income students or whether there would be disparities in the growth rate (Jordan et al., 2006, p. 156).

The authors sent surveys to families to find out about time spent at home engaged in math and reading activities. Jordan et al. (2006) found a significant difference in reported time spent on math and reading activities for low-income students and middle-income students. Middle-income families reported that they spent more time engaged in academically focused activities (p. 157). This was thought to be a contributing factor to initial disparities in mathematics abilities between the two groups. Children were observed in their classrooms to ensure that equal instruction was given to each group being studied. The authors did not find any significant differences in the level of instruction received among the different classes and the same mathematics curriculum was used in all classes which supported the equivalent lessons. The students were assessed using a number sense battery four times in their kindergarten year; once in September, again in November, then February, and finally, in April.

The findings revealed that males scored higher on overall number sense measures, but no significant gender differences occurred in rate of growth over time (Jordan et al., 2006, p. 162). The authors also found that the age of kindergarten entry was positively associated with number sense scores. More specifically, the authors noted that kindergarteners who began slightly older than their classmates had an advantage and this lead persisted throughout various times in the year (Jordan et al., 2006, p. 163). Better performance on the reading proficiency test also was associated with higher scores on the number sense subtests. Additionally, children who were in the middle-income group performed better on the end of year number sense tests than did low-income children. The data also revealed that students in the low-income group demonstrated less overall growth than their peers when solving story problems, but not significantly less growth on other subtests.

Significant results of the study demonstrated that a low-income kindergartener was four times as likely to fall into the category of low achievement and flat growth for story problems than his or her middle-income peers (Jordan et al., 2006, p. 170).When similar calculation problems were presented to students in a non-verbal context and with pictures, both income groups made similar progress. The findings in the study also demonstrated that low-income children were entering school with a math problem solving disadvantage. Reading skills, age, and gender all seemed to be related to mathematics achievement for students at the end of their kindergarten year, but the authors indicated that these trends may not hold beyond the kindergarten year.

Interventions Designed to Reduce Poverty's Educational Impact

While Cutuli et al. (2013), Herbers et al. (2012), and Stanton-Chapman et al. (2004), among others, focused on demonstrating educational disparities in children caused by poverty, other researchers focused on finding ways to reduce the impacts of poverty on children by proposing and testing methods to change the trajectories. In one such study, Carlisle et al. (2013) examined the relationship between specific teacher supported vocabulary instruction and resulting student gains in reading across one year. Carlisle et al. hypothesized that students who underachieved in vocabulary acquisition and reading comprehension would likely demonstrate delays in vocabulary knowledge and reading comprehension throughout their school years if teachers failed to provide scaffolded support to enhance reading vocabulary in related reading selections (2013, p. 1366).

Carlisle et al. (2013) used qualitative and quantitative research methods in their study. They utilized student demographic and achievement data found in the Single Record Student Database from 19 schools across six districts in Michigan during the 2007-2008 school year (p. 1367). The research encompassed participants from a larger study that investigated second and

third grade classroom instruction. This limited the study to results from only one state. Carlisle et al. characterized teachers in the study by gender, race/ethnicity, and educational level. Participants in the Carlisle et al. study included 44 third-grade teachers, 91% of them female, 21% of them non-white, and 52% of them having Master's degrees (2013). Defining characteristics of the third-grade students included race (36% non-white), eligibility for free/reduced price lunch (73% qualified), English proficiency level (19% had limited English proficiency), and identification as special education students (12% qualified) (Carlisle et al., 2013).

The procedures in Carlisle et al.'s study included classroom observations, teacher questionnaires, and a review of student reading achievement data using a multi-level response model (2013). Attempts to increase inter-observer reliability, such as two-day training for observers to compare, practice, and discuss coding for lessons, were included in the preparation for the study. The overall agreement in coding ranged from 80% to 96% across all fields and all options within each field (Carlisle et al., 2013, p. 1369). The agreement rates were fairly high with subjectivity considered. Carlisle et al. (2013) reported that during each five-minute recording interval, the observer recorded various information about the lesson including the purpose of the lesson, the arrangement of the group (e.g. whole class or small group), the materials used, any instructional actions (e.g. giving directions), actions taken to explain vocabulary, and the percentage of students engaged actively in the lesson (p. 1368). Carlisle et al. (2013) collected Teacher Questionnaires and assessments of teacher knowledge about reading, to further understand the teacher's impact on vocabulary instruction.

Key findings in the Carlisle et al. study suggested that teachers' support of students' vocabulary learning was significantly associated with gains in reading comprehension skills

(2013). Vocabulary learning was measured by discourse actions and reported by observers as fitting into one of five categories defined on page 1369 by Carlisle et al. (2013):

> The teacher: (1) defines word or word parts (e.g., "A hoe is a garden tool"), (2) states or reads a sentence/sentences to examine the meaning or use of a word in context (e.g., "Let's read the sentence to see how the word hoe is used and what it might mean"), (3) asks students to explain a word's meaning (e.g., "Can anyone tell me what a silo is?"), (4) asks students to use a word in a sentence (e.g., "Can you use the word silo in a sentence?"), (5) fosters discussion of word meaning (e.g., "The passage we read mentions hoe, rake, and shovel. Let's talk about how these tools have different purposes").

The research team determined that discourse actions with higher numbers were associated with stronger teaching methods. Students who entered schools with low achievement in reading comprehension and vocabulary performed better with teachers who used more discourse. The team found similar effects in high and low performing classes (Carlisle et al., 2013). While Carlisle et al. (2013) concluded that teachers' higher level of support for vocabulary learning lead to increased reading comprehension, as measured by standardized tests, the study was limited to a small region of the United States population and may not generalize to other areas in the country. Although the sample size was a major limitation to the study, Carlisle et al. offered optimistic insight for future research opportunities related to students living in poverty who began their educational career with limited vocabulary.

Goldstein et al. (2017) provided additional evidence for the support of early and explicit vocabulary instruction in a study that examined academic vocabulary learning in a district with a high number of low-income students. The authors studied vocabulary instruction groups implementing varying degrees of word learning. They compared outcomes to control groups of

children who did not receive explicit vocabulary instruction. The authors tracked data to determine whether student growth was attributed to higher-level vocabulary learning or to initial language and cognitive measures, or special education status (Goldstein et al., 2017, p. 3241). Ten classrooms of first grade students from two elementary schools in the Florida Panhandle School District were recruited for the study, resulting in the ultimate participation of 241 students from a school district whose population as a whole qualified for free and reduced lunch at a rate of approximately 90% (Goldstein et al., 2017). About 15% of the students in the study had Individualized Education Plans (IEPs). Results were monitored under the category of students with disabilities (Goldstein et al., 2017).

As the researchers attempted to streamline their methods, they chose tier two words, words that appear more frequently in texts, for target vocabulary groups while the control groups learned phonics strategies (Goldstein et al., 2017). Teaching scripts were created for the target groups. Students were exposed to the vocabulary words 12-15 times and the definitions were provided four to six times (Goldstein et al., 2017). The authors admitted that the findings of the study should be interpreted with caution due to the study's small scale and incomplete data sets (Goldstein et al., 2017). The authors designed the study to be conducted concurrently while teaching and to include natural conversation surrounding the vocabulary. The resulting conversations impacted the research results to some degree.

The preliminary results confirmed that students in the target vocabulary group performed significantly better than the students in the control group, based on the subtests given (Goldstein et al., 2017). While the results varied among the subtests, the target vocabulary group consistently outperformed the control group, indicating that specifically targeted vocabulary instruction was an important intervention strategy for students from low-income families

(Goldstein et al., 2017). The authors compared the intelligence rates in the vocabulary and control group to ensure there was no significant difference. Goldstein et al. (2017) found that the control group's mean IQ of 87.6 was slightly lower than the vocabulary group who averaged 93.6. The authors did not consider this a significant difference based on the group dynamics represented. Additional findings in the study indicated that children in the vocabulary group with Individualized Education Plans (IEPs) did not benefit as much as students without IEPs (Goldstein et al., 2017, p. 3248). Vocabulary levels were an important consideration for teachers choosing an intervention to benefit students living in poverty who are also identified with a disability. Nevertheless, the results indicated that vocabulary instruction benefited all students (even with IEPs) by measure of increased assessment scores when compared with the control group (Goldstein et al., 2017).

To compliment some of the research that has been done to assess the outcomes of reading strategies for students living in poverty (e.g. Carlisle et al., 2013), additional research reviewed similarly targeted interventions for math achievement. Robinson (2013) investigated the association between mathematics gains, poverty status, and behavioral engagement in kindergarten classrooms in a 1998-1999 longitudinal study titled *Early Disparities in Mathematics Gains Among Poor and Non-Poor Children Examining the Role of Behavioral Engagement in Learning*. Robinson's study found evidence that suggested increased behavioral engagement during mathematics played an important role in mathematics gains for students at risk for low math academic achievement due to poverty or economic disparities (2013).

Robinson examined student behaviors in the fall of their kindergarten year and classified behaviors on a six-item scale, while controlling for individual and family variables that included race and ethnicity, Head Start attendance, single parent status, age, gender, and parent

educational attainment (2013, p. 29). The author coded for classroom controls that included full day kindergarten, time spent on small group instruction, time devoted to math instruction, class size, and the average socioeconomic status of the classroom. The author used an "income-to-needs ratio" to express the level of poverty a child experienced based on their family's income in proportion to the 1998 poverty line (Robinson, 2013, p.28). A child was considered "poor" if their family was at or below 100% of the poverty line and "low-income" if their family income was between 101% and 200% of the poverty line. Children with families above 200% of the poverty line were considered "non-poor". The results showed that "poor" students had lower math gains compared to their "low-income" peers and "non-poor" classmates (Robinson, 2013, p. 33). Additionally, Robinson (2013) found that poor children were rated by their teachers to be less behaviorally engaged. In regards to behavioral engagement moderating effects of poverty, Robinson revealed that "poor and low income students demonstrated larger mathematics gains relative to non-poor students at higher levels of engagement" (2013, p. 33). The results suggested that engagement was even more important for students living in poverty when learning math. Robinson's findings illustrated the importance of instructional engagement for the most vulnerable students while leaving subjectivity and relativity to be interpreted.

Robinson (2013) admits that there was some degree of teacher bias in his study, but the information regarding math gains within the kindergarten year could be generalized to a fairly large sample and was consistent with different controlled variables. The reported results in Robinson's study gave valuable insight for educators and researchers; negative trajectories for students living in poverty could potentially be disrupted with engagement strategies in mathematics lessons. More research should be done at varying age levels to measure the validity

across different age groups, but this data provided hope to early intervention strategists, nonetheless.

In one intervention focused study, Dyson et al. (2011) reviewed the effectiveness of an eight-week number sense intervention targeting students who were from families considered to be "low-income" as a way to address the risks associated with weak early mathematics skills. The authors reviewed the skills identified by the National Research Council in 2009 that were important for early math achievement and decided that they would focus on "numbers" in their study. The authors designed the present study based on information from previous research. They considered research indicating that foundational competencies in number sense were associated with math success in later years (Dyson et al., 2011, p. 166). Dyson et al. selected target students for the study based on research from previous literature that indicated math scores in kindergarten predicted math success later on (2011). The research also showed that students from low income backgrounds tended to have lower scores in early math measures (Dyson et al., 2011, p. 168).

Dyson et al.'s study included 121 Students from kindergarten classes in five schools in the Mid-Atlantic Region (2011, p. 169). The authors used objectively scored pre- and post-tests and included math achievement measures from the Woodcock Johnson III and Number Sense Brief. Students were randomly assigned to either an intervention group or control group (Dyson et al., 2011). Interventions used in the study required scripts for 24 lessons with corresponding activities and discussions. Specific mathematics vocabulary was a key teaching component (p. 171). The lessons were designed to last 30 minutes and were used to target small groups of students (Dyson et al., 2011).

Dyson et al. (2011) found evidence that suggested the intervention strategies were successful in increasing number sense in the intervention group as measured by assessment statistics. The authors reported that the control group's scores increased from 50% accuracy on standardized measures to 68% accuracy, while the intervention group increased from 45% to 74% accuracy (Dyson et al., 2011, p. 174). The authors' findings indicated that students in both the control and intervention groups generally made gains over time, but the intervention group made more growth on the short term, assessed measure. Dyson et al. (2011) demonstrated that students living in poverty benefited from explicit number sense instruction, which increased their chances of success later in their academic career. The short, eight-week intervention required only 30 minutes per lesson.

Due to the small sample size of 121 students, the authors stated that the results should be interpreted with caution. The authors reported that not all measures of achievement demonstrated the same significant outcome, one other flaw of the study. As the authors explained on page 175 of the report (Dyson et al., 2011), the delayed testing using the Woodcock-Johnson III measure did not result in a significant difference in scores when comparing the intervention group versus the control group. Despite the shortcomings, the study illustrated that children made gains in mathematics understanding when relatively short amounts of specifically targeted intervention strategies were provided.

In yet another study focused on intervention, Duncan et al. (2007) reviewed the long-term impact of specific program parameters targeting young students in their proposal, *Reducing Poverty through Preschool Interventions*. The authors of this study focused on reducing the amount of poverty by "providing high-quality care to disadvantaged pre-school children" (Duncan et al., 2007, 143). This study was quite different from previously noted interventions

designed to improve academic skills, readiness, or achievement for students living in poverty. The authors presented a cost-benefit analysis to defend their approach, with the argument that increased spending for early education programs would ultimately yield greater long-term societal and financial benefits (Duncan et al., 2007, p. 143). Additionally, Duncan et al. hypothesized that the poverty rates of children in the study would be reduced by five to 15% (2007, p. 143).

When Duncan et al. wrote the proposal, funds were not available to support this project. However, they set the parameters and published their proposed design. The authors anticipated a plan that would take place over the course of two years and target "economically disadvantaged three- to four-year-olds" (Duncan et al., 2007, 143). Duncan et al. proposed that classrooms be limited to no more than six students per class and taught by college educated teachers (2007, p. 149). The authors envisioned wrap-around services available to parents as a way to encourage and maintain participation in the program. This included parent outreach and guided support via phone calls and facilitation for social services led by the students' teachers, voluntary childcare, and some health services similar to ones in the Head Start Program (Duncan et al., 2007, 149). The participation of children from families with an income 1.5 times below the poverty line would be fully subsidized. This incentive encouraged participation by the target audience. Families of children with parents who have high incomes would pay some portion of the cost of services (Duncan et al., 2007, 149).

The authors speculated that the wrap-around services would provide immediate short-term benefits with longitudinal data revealing additional positive outcomes. The authors hypothesized decreased special education classifications and school retentions and increased test scores (Duncan et al., 2007, p.152). Some of the long term impacts mentioned were less crime

and greater economic productivity due to less money spent by taxpayers on crime-related expenses (Duncan et al., 2007, p. 152). Hypothetically, the increased academic scores linked to student success would provide better jobs and result in less poverty. Additionally, Duncan et al. believed that the subsidized care portion of the plan would allow some parents the opportunity to work, increasing their income and societal productivity (Duncan et al., 2007, p. 152). The authors considered that estimated rates of attendance and the actual attendance rates could potentially differ from the target, but repeatedly indicated that the benefits of spending more money on early interventions and providing high-quality care would yield better outcomes than the current system's spending allows. Duncan et al. (2007) was not able to assess results of the idealistic and hypothetical program. It is important for additional research to look at the effectiveness of existing programs. Educators and policymakers need to implement effective programming for students who live in poverty and are at the greatest risk for academic underachievement.

Review of Early Childhood Interventions

In attempt to add to limited research regarding quality of early childhood services, Pelatti et al. (2016) investigated differences in classroom quality in publicly funded Early Childhood Education (ECE) classrooms and inclusive ECE classrooms that typically included students with disabilities. The authors considered income and race variables in their process of evaluating classroom quality in early childhood classrooms serving children who had disabilities and were from low-income households. In the study, Pelatti et al. (2016) included 164 classrooms taught in either Midwestern or Mid-Atlantic states (p. 829). Of the classrooms, 85 were labeled as ECE and 79 were labeled as inclusive. Pelatti et al. differentiated between process quality and structural quality in the classroom evaluations. Process Quality encompassed the "quality of teacher-child interactions" as defined by emotional support, classroom organization, and

instructional support (2016, p. 831). The authors categorized Structural Quality based on standards and best practices that primarily existed in state regulations (Pelatti et al., 2016, p. 833). Some of the standards included teacher level of education, class size, and teacher-to-student ratio. The authors used teacher questionnaires, demographic information about the students and teachers, and classroom observations to evaluate the overall quality in ECE and inclusive classrooms.

Pelatti et al. found that in regards to process quality, as observed and scored by a coder, the emotional support in inclusive classrooms was mostly the same between the two classroom types, but slightly stronger in inclusive classrooms under the category of classroom climate (2016, p. 839). The classroom organization dimensions were not reported as significantly different between the classroom types as they both scored in the moderate range. Inclusive classrooms, however, scored in the low range for instructional support, while instructional support in ECE classrooms was stronger (Pelatti et al., 2016, p. 839). This statistic hinted at a potential need for instructional improvement in inclusive classrooms.

The authors determined the level of structural quality based on educational attainment. They found that over one-third of ECE educators had a bachelor's degree while all of the teachers in the inclusive classrooms held at least a Bachelors degree (Pelatti et al., 2016, p. 839). Inclusive classroom teachers also had more specialized training in early childhood education. In-service training records demonstrated that most ECE teachers had the required 15 hours while, oppositely, only one-fourth of inclusive teachers had the training (Pelatti et al., 2016, p. 839). The study reported that class sizes were relatively small for both classroom types (Pelatti et al., 2016, p. 844). In ECE classrooms, 94% of the classrooms had less than 20 students and 89% of them had a student-teacher ratio of 1:10 or less (p. 844). In inclusive classrooms, 99% of them

had less than 20 students and 100% had a student-teacher ratio no bigger than 1:10 (p. 844). Inclusive classrooms were slightly greater in structural quality when all variables were considered.

The results of the study were interpreted by the authors as having implications for program improvement policies in aspects of classroom environment for students with disabilities. The authors emphasized an increased policy focus on early intervention with little research on the quality of the early intervention classroom services. Pelatti et al. (2016) described their hope that the research would lead to more focus on better quality early childhood education for students at risk due to poverty and/or disabilities. The findings in the study offered some standards of quality measurement for future research in larger studies.

Head Start has been the nation's largest comprehensive child development program for three- and four-year-olds from low-income families for many decades, providing educational, social, health, and nutritional services (Barnett, W. S., 2007). Hillemeier et al. (2013) looked closely at The Head Start Program as one of the largest resources for children of families living in poverty. The authors compared Head Start Programming with other childcare models. They investigated childcare type and quality of experience in their study of children born in the U.S. in 2001. Hillemeier et al. (2013) found that Head Start programs had overall higher quality ratings than other childcare centers, particularly for poor children (p. 180), although less than one-third of poor children were enrolled in a Head Start Program.

In their research, Hillemeier et al. (2013) used parent interviews, two rating scales, and observational measures. The authors also used individual and contextual characteristics to describe the population of students. Low birth-weight, poverty, race/ethnicity, sex, age, mother's education, marital status, mother's employment, region of residence, rurality, and Head Start

enrollment were all considerations in the study (Hillemeier et al., 2013). Statistically, the authors found that the children most likely enrolled in Head Start programs were African American (31.5%) followed by Native American children (31.2%) (Hillemeier et al., 2013, p. 183). White children were only 7.9% of the population enrolled in Head Start (Hillemeier et al., 2013, p. 183). Within the Hispanic population, the authors found that children were more likely cared for by parents rather than enrolled in Head Start programs. This was true even though there are "similar rates of economic disadvantage in the Hispanic community as in the African American community" (Hillemeier et al., 2013, p. 183). The authors also found that only one of five children having low birth-weight, a category considered to be at risk for developmental delay, was enrolled in Head Start (Hillemeier et al., 2013, p. 183).

In examination of quality care ratings, the authors indicated that the scores for Head Start programs did not vary among the characterized categories of families, while the quality ratings for family daycare varied more significantly between poor and non-poor and white and non-white families (Hillemeier et al., 2013, p. 184). Poor and non-white families reported lower quality ratings in family care. Additionally, Hillemeier et al. (2013) unveiled that:

> Average child care quality ratings were consistently higher in Head Start compared with non-Head Start Programs for all groups. Statistically significant differences were seen favoring Head Start centers among poor children (4.75 vs. 4.28), Hispanics (4.90 vs. 4.45), Asians (4.76 vs. 4.43), whites (4.89 vs. 4.51), and non-low birth weight children (4.77 vs. 4.48) (p. 185).

The authors reflected on the above statistics positively. They consistently observed that Head Start centers provided higher quality care than family care across the board for children at the

greatest risk for developmental delays (Hillemeier et al., 2013). At-risk children received quality care and intervention when they attended programs, but showed low attendance rates.

Peterson et al. (2004) also reviewed the Head Start Program, but focused on the Early Head Start Program related to eligible students who received special education services under Part C, Early Intervention Services. Part C services are mandated under the Individuals with Disabilities Education Act (IDEA) as early intervention services for children at risk for developmental disabilities from birth to their third birthday. Early Head Start (EHS) was described by the authors as a "comprehensive" program that services low-income families with children under the age of three and provides collaborative support for Part C services and childcare providers within local communities (Peterson et al., 2004, p. 77). Peterson et al. tracked the data for children who had disabilities and potential disabilities within the Early Head Start (EHS) system as a part of their project in 2004 titled, *Early Head Start: Identifying and Serving Children with Disabilities.* The author's 2004 information reported that 62,000 children participated in EHS programs available in every state across the U.S. The programs addressed needs in the areas of child, family, and community development, which included collaboration with Part C Early Intervention Programs serving families with infants and toddlers with disabilities who were under the age of three (Peterson et al., 2004, p. 77).

Peterson et al. (2004) primarily found that the incidence of children with potential disabilities was extremely high within the EHS population (87%), while the number of families who received Part C services was much lower (under 5%) (p. 81). Peterson et al. (2004) delved into factors believed to cause the low rate of identification in special education Part C services and questioned what indicators of disability were found, how demographic characteristics related to the receipt of Part C services, if there were gaps between when a disability was identified and

services began, the impact of services on EHS participation, and the relationship between disability and EHS involvement (Peterson et al., 2004, p. 78).

Peterson et al. reviewed the results in a 1996-2001 study conducted by the EHS National Research Consortium (2004, p. 78). The study included 3,001 families randomly assigned into an experimental design that evaluated the impact of the EHS program (p.78). Data collected in the EHS study included parent interviews, direct child assessments, and family demographic characteristics at enrollment time (Peterson et al., 2004, p. 79). The study labeled risk variables associated with children who had a developmental delay including cognitive and physical conditions such as asthma, high lead levels, and low birth-weight (Peterson et al., 2004, p. 81).

The research uncovered that some demographic characteristics consistently predicted children who received Part C services within the EHS program study (Peterson et al., 2004). For example, the authors reported that "across all categories, being of color and having a mother who did not graduate from high school was associated with decreased likelihood that a family would receive Part C services" (Peterson et al., 2004, p. 82). Peterson et al. (2004) reported additional factors associated with decreased likelihood of receiving Part C services, which included not speaking English, lower income, and multiple demographic risks (teen parents, less well educated parents, unmarried, etc.) (p. 82). The authors also found that gaps existed between the number of students eligible for Part C services and those who actually received services (Peterson et al., 2004, p. 82). Alarmingly, 26% of the children assessed had delays in receptive language skills, while only 20% of this group of students received Part C services (Peterson et al., 2004, p. 82-84). Although, the authors found that parents of children in this group were more aware of their children's language delays when compared to cognitive delays (p. 84). Despite the low rates of participation in Part C services, the authors noted that children who participated

in EHS were more likely than children in the control group to receive Part C services (Peterson et al., 2004, p. 84).

In a reflection of the study, the authors reported that the results should be interpreted with caution as not all students with disability risk factors would actually qualify for special education services if fully evaluated. Though this is true, the authors also noted an alarmingly high rate of students likely eligible for services not in receipt of them. It is the responsibility of EHS to assist with the collaboration and identification of eligibility (Peterson et al., 2004, p. 85). With this finding, Peterson et al. concluded that more needs to be done through EHS services to support families in accessing the services their children may need to be successful.

In 2011, Peterson et al. conducted a follow-up longitudinal study that examined three categories of children who showed indicators of a developmental disability or potential disability along with the prevalence of children in each category receiving Part C services (p. 28). The authors identified the three categories of children as "received Part B services", "developmental risk" and "biological risk" (Peterson et al., 2011, p. 28). In this follow-up study, Peterson et al. (2011) found that 62% of children who participated in the study fit into one of the three categories. Children living in poverty were "among those most likely to be classified in one of the categories and to have received a variety of services" (p. 28). Research available at the time of the study indicated that nearly one million children were serviced by the Head Start Program and the number of children in the Early Head Start (EHS) program was above 66, 000 children, increased enrollment since Peterson et al.'s previous study in 2004. Peterson et al. (2011) reviewed data collected from a sample of EHS attendees within that population and determined the prevalence of specific disability indicators among low-income children between ages three and five, the relationship between disability indicators and family characteristics, the relationship

between having a disability indicator and receipt of specialized services, continuity between Part C and Part B services (Special Education services for school aged children), and predictive factors of Part B services (p. 30).

Peterson et al. (2011) provided further insight regarding the population who received EHS services. The key findings in their study confirmed that 18.6% of children in the sample received Part B services, a higher percentage than the general U.S. population (Peterson et al., 2011, p. 36). The authors interpreted this statistic to mean that a higher number of children who qualify for EHS because of their low-income families also qualify for special education services through Part B due to a developmental delay or biological risk (Peterson et al., 2011, p. 36). Peterson et al. (2011) also explained that this statistic means that children who needed services were able to access them at higher rates due to their EHS attendance (p. 36). To confirm their hypothesis, the authors found that students who received Part C services before the age of three, were more likely to be enrolled in Part B services as preschoolers (79.8% of them were) (Peterson et al., 2011, p. 36). However, Peterson et al. indicated that an entire third of the students who were identified as having a developmental risk prior to age three and continued to have a developmental risk into preschool did not receive Part B services while in preschool (Peterson et al., 2011, p. 37).

Limits to Access of Special Education Services

While quality early childhood education programs and special education programs are important for at-risk students, access to the programs is also crucial. Zima et al. (1998) explored the need for special education services in emergency homeless shelters in Los Angeles in order to highlight the number of children with "probable disabilities" that have limited access to special education services based on their living situations and school attendance rates (p. 98). Zima et al. (1998) used partial assessments, including academic, intellectual, and behavioral, to

identify children with a “probable disability”. Behavioral disorders (BD), learning disabilities (LD), and mental retardation (MR) were the categories of disability identified in the study. The term Developmental Cognitive Disability (DCD) is currently used in special education, replacing the term MR. The students were not given full special education evaluations based on school-age criteria, but were given portions of assessments that could be used to identify students within the three disability categories in full evaluations. The authors also wanted to discover predictors that indicated needs for pre-referral interventions and referral to special education programs among the students in emergency shelters based on demographic information. Zima et al. (1998) hypothesized that children in shelters, who typically faced high levels of residential mobility and frequent school changes, would demonstrate higher levels of need for specialized services due to disabilities and lower levels of access or enrollment in the programs due to high mobility (p. 99).

Zima et al. selected 22 Los Angeles emergency homeless shelters for the study. For the shelter to be included in the study, the average family stay had to be less than eight weeks. Families needed to have at least one child between the ages of six and 12 who stayed at least one night in the shelter. Parent interviews, student interviews and student testing were completed within the shelter setting. Zima et al. (1998) used information reported by parents regarding school enrollment, attendance, and academics. The authors were unable to verify the information with school records due to Family Educational Records Privacy Act (FERPA) (p.100). Parent and student demographic information was also recorded for the purposes of the study.

The authors found that 43% of children in the shelters were homeless for more than two months in the past year and 29% had been homeless for more than one year (Zima et al., 1998, p. 102). The time a child had been homeless within the year averaged three months and 47% of all the children had lived in three or more places in the previous 12 months (Zima et al., 1998, p.

102). Zima et al. (1998) reported that "most children in the study were enrolled in school (88%), but 39% of the students missed more than one week and 15% missed more than one month within the previous three months" (p. 103). The authors noted that the statistical enrollment and attendance data did not vary greatly by race or ethnicity.

In describing the level of need based on probable disability status, the authors commented on the measurements used for testing. Zima et al. (1998) indicated that the scores used to determine "probable disability" were scores that set a higher bar than ones used in a full evaluation because there would be additional criteria to be met in a full evaluation. The authors explained that they used shorter versions of the assessments for ethical reasons and also due to the "transient nature" of the families living in shelters (Zima et al., 1998, p. 100). The indicated need for pre-referral intervention was based on the number of children who screened positive for a "probable disability" (Zima et al., 1998, p. 103).The authors found that "46% of students tested within the borderline or highly probable range for at least one special education disability" (Zima et al., 1998, p. 103). The percentage of children with a probable disability in the shelters was found to be much higher than in the general public, a statistic the authors viewed as a confirmation of their hypothesis.

The authors found interesting statistical information regarding race, age, and gender within the disability categories. Zima et al. reported "older children had twice the odds of testing positive for LD compared to younger children" and Caucasian children were four times as likely as children from minority backgrounds to screen positive for LD (1998, p. 105). Significantly, children who missed more than one week of school in the previous three months were twice as likely as children who missed less than one week to screen positive for LD, but not for MR or BD (Zima et al., 1998, p. 105). This could account for the high numbers of children screening

positive for LD, as a previously stated statistic indicated that 39% of the students in the study missed more than one week of school and 15% missed more than one month.

Another finding stated "forty percent of the children reported that it was hard for them to keep their mind on their school work even though 87% of them indicated that it was good to get high grades in school" (Zima et al., 1998, p. 103). The authors demonstrated in their study that there certainly was a higher level of need in the shelters, but admitted the difficulty in separating actual disabilities associated with academic difficulties and difficulties in school based on the amount of school missed by this population of students. Zima et al. (1998) commented on the need for more careful assessment of students who may have disabilities, but also missed a significant amount of school due to homelessness. The study highlighted a potential need to adapt the screening process for children with potential disabilities living in homeless shelters. The authors did not mention whether any students in the study were actually evaluated for special education at their schools and received services under a disability category. This would be important information for the authors to compare the level of need found in the study.

Hibel et al. (2010) questioned the relationship between certain school, family and student characteristics and special education placement. In pursuit of answers, the authors used longitudinal behavioral and achievement data from a 1998-1999 kindergarten class to identify variables that predicted special education placement. The study encompassed data from 11,138 students in 970 schools said to be "nationally representative" (Hibel et al., 2010, p. 317). Hibel et al. remarked on prior research indicated negative educational costs associated with special education placement (2010, p. 313). While the authors noted that the benefits of special education programs likely far outweigh the costs, they determined that purposeful consideration of special education placement was important to educators and policymakers (Hibel et al., 2010,

p. 313). Hibel et al. noted that "disproportionate placement of some groups into special education may limit the provision of special education services to other groups of eligible students …and would be problematic if services were less likely to be delivered to those most at risk" (2010, p. 313). The authors hypothesized that specific student race and class characteristics would be predictive of special education placement and, based on previous research (Skiba et al., 2005), minority students would be overrepresented in special education. The authors also predicted that special education placement would diverge for similar students at different schools with varying amounts of minority students. The authors used the term "frog-pond effect" to explain this phenomenon.

Hibel et al. (2010) confirmed their "frog-pond effect" hypothesis. They noted that students with lower scores on academic assessments who attend higher performing schools on average, had more of a chance of "standing out" (p. 315) and were more likely to be placed in special education programs than students with similar scores at lower performing schools. The authors explained this was related to subjectivity in the special education evaluation process. The authors concluded that lower achieving schools were possibly not able to meet the needs of underperforming students (Hibel et al., 2010, p. 315). The authors applied the "frog-pond effect" to behavioral needs, as well as academic needs, meaning a school with more behavioral incidences would be less likely to meet the needs of students who have a behavioral disability.

Hibel et al. used predictive factors such as gender, race/ethnicity, family Socio Economic Status (SES), student academic achievement, and student behavior as dependent variables to study which students would or would not receive special education services. The authors found that academic achievement levels in kindergarten were the strongest predictor of special education identification before fifth grade. Initially, the data indicated that non-white students

were more likely to be placed in special education programs based on placement rates, consistent with previous studies on the topic. When school-entry individual student achievement test scores were controlled, the authors found that non-white students were much less likely to be placed in special education programs (Hibel et al., 2010, p. 323). This data contradicted previous research and the authors insisted that more research of this type be done to investigate whether the results could be replicated. In support of other research, the authors found that male students were more likely than female students to be placed in special education, even after controlling for variation in their academic achievement (Hibel et al., 2010, p. 323). Social class and background did not have a statistically significant relationship with special education placement in this study. When the authors controlled for behavioral variables, the results of the study did not show significant differences.

Student behavior measures included observational information reported by teachers on student task engagement and externalizing behavior problems (Hibel et al., 2010, p. 319). The frequency of a student's engagement in classroom tasks strongly predicted whether a student received special education services. Significant findings related to behavior in the classroom were consistent with other studies that confirmed that students more frequently engaged in classroom tasks were less likely to be placed in special education. Conversely, students who "frequently engaged in externalizing behavior problems were more likely to be placed in special education programs" (Hibel et al., 2010, p. 323). The authors noted that boys were more likely to be rated as *less engaged* and *more disruptive* in the classroom (Hibel et al., 2010, p. 323). When behavior was controlled, the rates of males placed in special education remained higher than females. The rates of non-white students placed in special education remained significantly

lower than the rates of white students when behavior and individual-level academic achievement at school entry were controlled.

School-level variables impacted the data differently. The authors found that the percentage of minority enrollment negatively impacted special education placement. The authors explained that this was caused by some individual-level race/ethnicity effects (Hibel et al., 2010, p. 324). The authors indicated that schools with a high minority enrollment did not demonstrate a significant relationship between race/ethnicity and special education placement. Additionally, as a school's SES increased, so did the likelihood of special education placement. When further evaluating the frog-pond effect, the authors used school mean test scores to evaluate lower special education rates in lower performing schools and confirmed that "schools with high-minority enrollments experienced an under-placement of students into special education beyond the frog-pond effect" (Hibel et al., 2010, p. 324). Students who attended schools with higher than average student engagement scores overall were at greater risk for special education placement. Family SES was not a significant predictor of special education placement when all variables were controlled for. Additionally, the authors noted that changing schools did not correlate significantly to special education placement (Hibel et al., 2010, p. 323).

Hibel et al. (2010) also examined the results of the data within the different disability categories. Data results for learning disabilities were generally aligned to typical results for special education, but the authors noted that on an individual level, the impact of individual academic achievement had a stronger association with being identified as having a learning disability than with a disability in general. This made sense as the criteria to determine a learning disability was heavily based in academic under-achievement. No significant relationship was found between learning disabilities and externalizing behavior problems. In discussion of their

results, the authors further analyzed the findings and uncovered that student levels of academic achievement "mediated the SES effect on placement in special education" to varying degrees within differing disability categories. The authors identified that a limitation of the study was that the data was collected from elementary students only. The authors recommended future similar studies targeting middle and high school students. Despite this drawback, the study found substantial evidence that the context of a student's education impacted placement or non-placement in a special education program. The authors concluded the analysis by declaring a need for more research in the area of minority disproportionate representation.

Hibel and Jasper (2012) analyzed risk factors for students placed in special education under the category of learning disabilities (LD), but specifically focused on children of immigrants. The authors chose to study students placed in the LD category, as it was the largest disability category with an increased number of students placed in special education services under this category. Hibel and Jasper (2012) suspected that there was a disproportionate representation of minority students within special education and that the timing of placement in special education was also disproportionate. The authors expressed efficacy concerns over the inequalities of special education services compared with non-special education services, including early intervention services (Hibel & Jasper, 2012, p. 504). As indicated by previous research, early interventions and early achievement have important and lasting effects on students at higher risk for academic underachievement due to a disability. However, the identification process for students who actually need specialized services has been complicated by the issue of disproportionate representation. The authors acknowledged the common concern that some students might be falsely identified with a disability and consequently denied access to general education at the required rate. The authors hypothesized that children of immigrants less

frequently received special education services or received delayed special education services, despite being statistically more likely to be placed in special education programs based on common demographic indicators. Additionally, the authors expected to find that this pattern existed because children of immigrants had high rates of language minority status and received English as a Second Language (ESL) services instead of special education in their early years (Hibel & Jasper, 2012, p. 522).

Previous research links race/ethnicity, SES, and gender, among other factors, to the increased chance academic underachievement (Cutuli et al., 2013; Herbers et al., 2012; and Jordan et al., 2006). Hibel and Jasper were concerned about the seemingly systematic prioritization of ESL services and language proficiency over special education intervention in the case of American children of immigrants. The authors used the term *language minority* to describe students living in homes where a language other than English was spoken (Hibel & Jasper, 2012, p. 507). Although schools are required to provide special instruction for language minority students who need ESL services, schools also have a responsibility to identify students who need special education services and sometimes students fall into both categories. The authors drew on data used in Hibel et al.'s 2005 study, nationally representative and longitudinal data spanning from 1998-2007, to address their hypotheses.

Hibel and Jasper analyzed the data considering individual child variables such as race, gender, behavioral readiness, academic ability at school entry, child age at kindergarten entry, and premature birth. The authors also considered school-level variables. The results indicated that children of immigrants were less likely to receive special education services during their elementary years even though these children are at a higher risk for low academic performance due to having lower SES, lower math achievement at school entry, higher levels of minority

status, and greater mobility between schools (Hibel & Jasper, 2012, p. 513). The authors noted that approximately 47% of children of immigrants receive ESL services during their elementary years (Hibel & Jasper, 2012, p. 513), a much higher rate than third-plus generation students. The data described on page 514 by Hibel and Jasper (2012) demonstrated that it was less likely for children of immigrants to ever receive LD services, but the chances varied in significance by grade level. More thorough investigation indicated that there was a lower rate of special education placement for ESL students in the earlier grades (Hibel & Jasper, 2012, p. 514). In confirmation of the authors' hypothesis, the data illustrated that children of immigrants have low odds of special education placement under the LD category, but have an increased chance as school years progress. Additionally, the authors reported that "children in immigrant families do not have significantly different probabilities of special education placement once schools controlled for participation in ESL programs" (Hibel & Jasper, 2012, p. 522). Hibel and Jasper explained this to signify that schools used ESL programs as an alternative to special education during the first years of elementary even though these students demonstrated LD needs at the same rate of their non-immigrant peers (Hibel & Jasper, 2012, p. 522). The findings are problematic as immigrant children were less likely to be considered for special education until their later elementary years and then are disproportionately placed into LD programs when it is arguably too late.

The authors discussed the need to eliminate false positive identifications in special education, but countered this argument with the consideration of the importance of access to early intervention. Hibel and Jasper highlighted a complicated relationship between ESL and special education. They considered limitations in their own data, reflecting on the lack of information from teacher, school, and district level resources. The authors also acknowledged the

fluidity of ESL services between different schools and determined that this could impact the rates of services received by the children of immigrant parents. Despite this, the numbers significantly demonstrated that students who were more likely to receive ESL services were much less likely to receive LD services in the early elementary years. The authors noted a need for further research controlling for variation within the language minority and immigrant population.

Mason-Williams (2015) inspected the quality in special education by measuring the access special education students had to "highly qualified teachers". The author cited current laws in education that require equal access for all students including students in special education programs. Mason-Williams based research questions on previous studies that indicated special education teachers (SETs) were unevenly distributed among schools and schools with high teacher turnover rates resulted in a lack of quality education, specifically in the special education programs. Mason-Williams asked three questions in her study. First, she wanted to know the characteristics of SETs in terms of teacher "qualification" and "preparation" as measured by degrees, certification, program types, and teaching experience. Mason-Williams (2015) also inquired about how the qualification and preparation of SETs in high-poverty schools compared with SETs in other schools (p. 251). Finally, the author asked if "students with disabilities in high poverty schools had the same opportunity to be taught by qualified and prepared SETs" (p. 252). The author hoped to bring about discussion regarding how unequal distributions of qualified teachers impacted high-needs student access to a fair and appropriate education.

Mason-Williams used data from a national data set which included information from a teacher questionnaire and school questionnaire and information about which schools had high-levels of poverty. The information was collected from teachers in public and private school settings during the 2003-2004 school-year and included only teachers who indicated that they

currently worked in special education in a long-term position (Mason-Williams, 2015, p. 252). Mason-Williams used various measures to account for special educator qualifications and preparation including the amount of time spent in teacher preparation, degree major, degree level, certification in special education, certification in education, type of preparation program, and teaching experience. The author compared these measures with school poverty quartiles to answer her research questions.

Results of the study indicated that fewer SETs in high-poverty schools had a special education degree. The data additionally showed that a slightly smaller number of SETs were certified in higher-poverty schools compared with SETs in other schools (Mason-Williams, 2015, p.255). Comparison data for preparation of SETs between school types revealed that more SETs completed no preparation program in high-poverty schools than in other schools. Mason-Williams (2015) added that teachers in high-poverty schools were also more likely to complete non-traditional programs compared with traditional or degree-focused programs. Regarding experience, Mason-Williams (2015) reported that 80% of SETs in high-poverty schools had three or more years of teaching experience, while between 84 and 85% of the teachers had three or more years of experience at the other schools. The author did not find a significant difference in SET degree level among the schools.

Based on the findings in the study, Mason-Williams concluded that students with disabilities in high-poverty schools did not have the same access to qualified and prepared special education teachers. Mason-Williams (2015) admitted that some of the findings demonstrated slight differences in teacher qualifications and preparedness, but may not be significant based on the close numbers. However, the author expressed concern over the amount (20%) of SETs that did not have extensive teacher preparation, did not hold full state

certification in special education, and were considered novice teachers (Mason-Williams, 2015, p. 257). Additional concerns were expressed over the number of SETs (25%) that did not hold a degree in special education or complete a traditional teacher preparation program. Mason-Williams used these statistics to reiterate concerns that students in high-poverty schools with special education needs did not have equal access to education, violating their rights as students. Mason-Williams suggested plans to support teachers who were underprepared and policy changes to resolve issues related to unequal distribution of qualified SETs.

Caldas and Bankston (1997) hypothesized that poverty status had a negative relationship with individual academic achievement and that social status of parents had a positive relationship with individual academic achievement. The authors also predicted that poverty status in peer population negatively related to academic achievement while family social status of peers showed a positive relationship. The authors used data in the study from the Louisiana Department of Education. More than 96% of the student data collected was from students who were either African American or White. Data from 1990, 10^{th} grade state competency tests, was used. The authors excluded students in special education in the study because testing conditions could not be controlled.

The study results indicated a tendency for minority students to attend schools where the majority of the students were their same race (Caldas & Bankston, 1997, p. 272). The results also demonstrated that students who qualified for free and reduced lunch were enrolled in schools that were disproportionally poor. Students attended schools with other students of similar SES backgrounds. The results additionally showed that students who were poor were more likely to be in schools with high numbers of African American students. Poverty status also correlated significantly with poor academic achievement (Caldas & Bankston, 1997, p. 273). Secondly to

race, the social status of student families strongly influenced student achievement. The authors noted it was important to consider school and individual demographics, which supported the previous research by Hibel et al. (2010) regarding the "frog-pond effect". The authors also found a significant correlation between schoolmates' socio economic status (SES) and individual academic achievement, but individual poverty levels correlated less with individual academic achievement. The authors assumed that the findings of the study related back to racial inequality. The authors noted that their view of the data might be oversimplified, but suggested that the reason that some students had an advantage in the system was due to the racial and SES make-up of the schools.

Intersection of Poverty with Racial Disproportionality in Special Education

Skiba et al. (2005) studied the correlation between race and poverty to determine if there was a clear link to disproportionality in special education identification in the article *Unproven Links: Can poverty explain disproportionality in special education?* In another report, the authors defined disproportionality as "the representation of a group in a category that exceeds expectation for that group, or differs substantially from the others in that category" (Skiba et al., 2008, p. 266). The authors of the current study initially identified assumptions regarding the causal relationship between poverty and disproportionality. Skiba et al. (2005) laid out the assumptions in logical order:

1. Minority students are disproportionately poor and more likely to be exposed to socio-demographic stressors associated with poverty.
2. Factors associated with living in poverty leave children less developmentally ready for schooling and ultimately yield negative academic and behavioral outcomes.

3. Students who are academically low-achieving or at-risk for negative behavioral outcomes are more likely to be referred, and ultimately eligible for, special education services.

4. Therefore, poverty is an important contributing factor that increases the risk, presumably in a linear fashion, of special education placement for minority students (p.131).

The authors cautioned against making assumptions based on the relationships between the variables and recognized that previous studies may have made inaccurate conjectures in regards to the correlation of race, poverty, and educational outcomes. Skiba et al. (2005) looked more closely at the relationships between the variables when they controlled for different factors.

Skiba et al. (2005) used district-level data to analyze the impact of poverty within the different disability categories to predict rates of minority special education disability identification (p. 132). The authors utilized enrollment data from Indiana school districts during the 2000-2001 school-year (p. 132). The authors focused on the disproportionality of African American students only. Skiba et al. (2005) examined five disability categories including mild mental retardation (MMR), moderate mental retardation (MoMR), emotional disturbance (ED), learning disability (LD), and Speech and Language (SL) due to high levels of disproportionality indicated in state data (p. 133). The authors chose poverty level, district resources, academic and behavioral outcomes, and race (African American or other) as independent variables in studying the estimated disproportionality in the district. Measures of school resources, indicated by the authors on page 133, included average teacher salary in the district, student-to-teacher ratio, expenditures per student, percentages of African American students in a district, and size of the school district based on enrollment. To account for both short and long term outcomes, the

authors described measures of academic and behavioral outcomes as the average third grade scores on state accountability measures, average SAT scores, percentage of students in the district taking the SAT, district suspension and expulsion rate, and district dropout rate (Skiba et al., 2005, p. 134).

Skiba et al.'s (2005) findings demonstrated the complex relationship between the variables. They concluded a strong correlation between poverty and special education rates, but the association between race and special education was almost zero in their multi-variate analysis (Skiba et al., 2005, p. 141). However, Skiba et al. (2005) also indicated "when both race and poverty were considered simultaneously, race was more predictive of special education identification than low income across all disability categories" (p.139). This finding was attributed to the high rates of overrepresentation of African American students in special education. Additionally, poverty was an inconsistent predictor of disproportionality and a weak predictor in all but one disability category (MMR) for African American students (p. 141). According to the NEA, Individuals with Disabilities Education Act (IDEA) 2004 mandates that states outline plans to measure rates of disproportionality in special education state performance plans. Individual states must determine what a significant level of disproportionality is when they submit the plan to the Department of Education and are to consider this when creating and revising district policies. These policies tend to differ significantly across the states (2007, p. 14). This study investigated the complicated relationships among the variables and confirmed that poverty was a relatively small factor in African American over-identification in special education. The authors found that suspension/expulsion rates were significantly related to ED disproportionality and were related somewhat across all disability categories. Skiba et al. (2005) speculated that this statistic said more about district resources than anything else, but identified it

as an area for potential future research. Overall, the predictors for disproportionality varied significantly across different disability categories.

Additional findings in the article linked the rate of students who received free lunch to early and late school achievement, further reinforcing poverty as a predictive factor for special education needs. Other results for the SL and LD categories of disability demonstrated an inverse relationship between free lunch and disproportionality of African American students in the two groups (Skiba et al., 2005, p. 135). Skiba et al. established that poverty had a different effect on the disability categories of LD and SL, but African Americans were found to be underserved in these categories despite their level of income. Skiba et al. (2005) indicated that some of the study results varied based on the control variables. While some correlations were significant, it was difficult to point to causal factors with the complex relationship between variables.

Several scholars (including Skiba et al., 2005) suggested that minorities are disproportionately represented as having disabilities. Related to this, Coutinho et al. (2002) sought to understand the influence of variables that affect special education rates for minority students including socio-demographic predictors. More specifically, the authors wanted to find the extent of disproportionality among students identified as learning disabled (LD). Coutinho et al. (2002) analyzed a sample of 4,151 school districts in the United States that served more than 24 million students during the 1994-1995 school year across all 50 states and Washington D.C. Coutinho et al. (2002) used data from a U.S. Department of Education- Office of Civil Rights survey to analyze the effects of gender, ethnicity, and socio-demographic factors on students identified with a learning disability. By doing so, the authors identified nine socio-demographic variables and used a logistical regression model to analyze the variables as predictors of students identified under the special education category of LD (Coutinho et al., 2002).

While Coutinho et al. (2002) hypothesized that minority students may be differentially susceptible to educational disability due to social and demographic factors like poverty, fiscal factors, and access to appropriate general education, the results of the study indicated that "the relationship between LD identification and predictor variables for individual gender/ethnicity groups were mixed in terms of strength and direction" (p. 54). In other words, the findings in the study did not conclusively indicate that any one demographic characteristic was a predictive variable of LD identification, but the authors made some associations in the research. For instance, relative to black and Hispanic students, LD identification rates increased as poverty rates increased (Coutinho et al., 2002, p. 54). Additionally, the data noted a weak to moderate positive correlation with housing and income levels and identification of LD in all groups except Native American (Coutinho et al., 2002, p. 54). The authors emphasized that the data was inconclusive based on weak and exclusionary relationships found between the variables. However, the information offers some insight on what socio-demographic characteristics define students who qualify for LD.

Coutinho et al. (2002) concluded that demographic and socio-demographic characteristics were important indicators of learning disabilities, but varied among different gender/ethnicity combinations. Relative to race and gender, the rates of LD varied by ethnic groups from 1.2% for Asian/Pacific Islander females to 9.2% for American Indian males (Coutinho et al., 2002, p. 53). Results illustrated that the odds of LD identification varied significantly depending on race/ethnicity and gender. The relationship between race and disabilities has been widely studied, with much of the research focused on the overrepresentation of African American males identified with Emotional/Behavioral Disabilities (EBD) and Cognitive Disabilities. While

focusing on LD identification, Coutinho et al. (2002) found that more research needs to be done to examine the high rates of American Indian males identified with learning disabilities.

Hosp and Reschly (2004) questioned the proportion of students represented in special education considering the impact of academic, demographic, and economic variables. The authors included the individual academic achievement variable in their examination of predictor variables because it was ignored from other studies. Hosp and Reschly (2004) obtained data from three sources (collected in 1998) that included information on students in the United States. The authors used Statewide and District-wide assessment data collected by the Department of Education in 16 states as the source of academic data. The data represented all regions in the United States.

The results of the study indicated that demographic information was a strong independent predictor variable for special education placement, followed by economic information as the strongest dependent predictor variable. The findings supported previous studies that demonstrated the strong correlation between economic and demographic predictors and special education program placement. Hosp and Reschly (2004) looked further into the different disability categories and found that demographic predictors were stronger for Emotional Disabilities (ED) and learning disabilities (LD) than other disability categories. The authors also found varying predictor variables more prominent in different disability categories across some racial groups, but not all. Spanning the racial and ethnic groups and disability categories, academic predictors generally had the weakest correlation with special education placement, but had a significant relationship in many of the groups (Hosp & Reschly, 2004, p. 194). Hosp and Reschly's (2004) study added to the research acknowledging disproportionality in special

education. The authors called for further research considering independent achievement as a key variable.

Gravois and Rosenfield (2006) saw overrepresentation of minorities in special education as a problem and developed instructional consultation teams to combat the disproportionate number of referrals and placements of minority students. Their study considered cultural variables that caused the over identification of minority students in special education, as well as cultural biases on tests and the effectiveness of pre-referral interventions. The study compared students in 13 schools selected for the Instructional Consultation (IC) teams with schools not selected for the IC teams over a span of two years. Twenty-two schools participated in five districts in the Mid-Atlantic States. The Instructional Consultation Team model was developed by the authors in a previous study in 2002. The team goal was to maintain student success in the general education environment through classroom teacher support focused on content and process of instruction.

Gravois and Rosenfield (2006) found that the implementation of Instructional Consultation (IC) Teams impacted the number of minority students placed in special education programs compared with schools in the same districts without IC Teams by reducing the number. The data demonstrated a reduction in special education referrals, evaluations, and placements (Gravois & Rosenfield, 2006, p. 48). The data also indicated that targeted instruction played a critical role in achievement scores, noting that more time should be focused on interventions and quality instruction prior to special education referrals. Additionally, the IC teams built positive relationships among school staff. Gravois and Rosenfield (2006) argued that these relationships were crucial for the success of IC teams. Overall, the authors found that IC teams were an

important consideration for addressing disproportionate representation of minorities in special education.

MacMillan et al. (1996) compared students in grades two through four recommended for pre-referral interventions, looking for a correlation between type of referral and ethnicity and/or gender. The authors studied students in five southern California school districts. Students were eligible for the study if they were referred to the student strategies team (SST) due to difficulties in school and required academic interventions. The study incorporated procedures for special education qualification including an intelligence test, academic achievement tests, social skills assessment, behavioral rating scales, and a behavioral screening device.

Overall, the authors found that white students scored significantly higher on IQ tests than African American students. White students also scored higher on reading portions of the academic testing than African American and Hispanic students (MacMillan et al., 1996). Since the students were selected based on teachers' judgment that they were at risk for school failure, the results of the study could not be generalized to the entire population (MacMillan et al., 1996, p. 147). The authors explained that the students in this study were already academically and/or behaviorally different from the norm as part of the selection criteria for referral to special education SST. The results of the evaluation sub-tests showed evidence of this to be true.

Additional findings in the study addressed MacMillan et al.'s hypothesis that children of different ethnic groups were referred to the SST for cognitive, achievement, and behavioral problems at varying rates. The results did not demonstrate a significant relationship between race, ethnicity, and the reason for referral to the SST. This finding contradicted previous research which suggested that the referral process was racially biased. The results also showed that the minority students referred to SST demonstrated an appropriate referral based on their lower IQ

and academic test scores (MacMillan et al. 1996, p. 148). The authors suggested that teachers demonstrated more hesitation when referring minority students for the SST than when referring white students based on the number of white students who scored higher on assessments compared with other racial groups. The authors acknowledged that during the time of the study in California, there was a concern about overrepresentation of minority students in special education that caused fewer minority referrals (MacMillan et al. 1996, p. 149). The findings demonstrated that standards for referral were not equal across racial categories and that minority students were perhaps under-referred, as opposed to over-referred. The authors contemplated the impact on students based on perception of effectiveness of pre-referral interventions. The authors indicated that if referral to the SST further stigmatized students, the referral rate of minority students may not be an issue. However, if the pre-referral interventions effectively increased student achievement, minority students might be excluded at a disproportionate rate from something that could benefit them.

Cosier and Causton-Theoharis (2011) inquired about the relationship between economic factors and levels of inclusive services for students with disabilities in general education classrooms. The authors determined factors associated with inclusive education in order to study the intersectionality between demographic and economic variables for students in inclusive education. Cosier and Causton-Theoharis (2011) focused on special education expenditures, socioeconomic factors, race/ethnicity, and legislation/policy. The data for the study was obtained from the New York State Education Department in 2005 and the National Center for Education (2006). A sample of 129 diverse school districts in central New York State was selected for the study (Cosier & Causton-Theoharis, 2011, p. 498).

The authors identified students as “highly included” if they spent less than 20% of their day outside of their general education classroom (Cosier & Causton-Theoharis, 2011, p. 499). Cosier and Causton-Theoharis separated students who received services for disabilities into four categories of inclusion; high, moderate, low, and no inclusion. Preliminary results of the study indicated that the number of highly included students correlated significantly with the students who also received free and reduced lunch (Cosier & Causton-Theoharis, 2011, p. 500). The data also demonstrated a positive correlation between the percentage of special education students and percentage of minority students, among other correlations not proven to have a significant causal relationship. Additional results showed that economic factors predicted levels of inclusion.

Cosier and Causton-Theoharis (2011) concluded that districts with high numbers of students with high inclusion rates in the general education classroom spent more money per pupil in general education and less on special education (p. 500). The authors offered the hypothesis that this statistic was related to the trend of increased inclusive education. The results of this study were inconclusive compared with previous studies that found differences in inclusion rates between races. Cosier and Causton-Theoharis (2011) reported that there was not a significant relationship between race and level of inclusion in special education (p. 501). Based on the correlation in results, Cosier and Causton-Theoharis recommend further policy review of funding for special education.

CHAPTER III: DISCUSSION AND CONCLUSION

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Summary

Research repeatedly demonstrated that there was a correlation between poverty and learning trajectories although there was not a clear correlation between poverty and learning disability services. Many researchers focused on identifying causal factors that put students at academic risk with the purpose of finding better ways to support these students. Some authors such as Cutuli et al. (2013) and Herbers et al.(2012), identified homelessness or high residential mobility as an effect of poverty that impacted students most significantly. Authors consistently found that students categorized as homeless or highly mobile were more likely to have academic difficulties in school early on, as demonstrated by early oral reading scores and math scores (Herbers et al., 2012). This accounted for some of the reasons that students living in poverty displayed lower academic trajectories. Authors, such as Jordan et al. (2006), additionally speculated that some of the educational disparities existed due to reported differences in math and reading activities done at home, finding that students who came from homes with less annual income were typically exposed to less academic information and were therefore starting off behind their peers. These students also were more likely to show flatter growth patterns over time, but many of these students were not necessarily identified as learning disabled.

Based on additional research, authors found that while students generally were resilient to the impacts of poverty (Cutuli et al., 2013), the number of risk factors students had experienced in their early lives played a role in academic readiness and achievement (Stanton-Chapman et al., 2004). Concerns with the students found to be less academically ready lead to further questions and investigations of children in high-poverty schools. Research completed by Goldstein et al. (2017), Jordan et al. (2006), and Willoughby et al. (2017), in addition to others, occurred in

educational settings where the majority of students represented low-income families or families living in poverty. These studies conclusively found that children struggled to achieve at expected rates, but responded positively to some of the targeted interventions.

With concerns over at-risk children falling behind academically, more intervention strategies are being proposed. Learning disability identification requirements have changed to reflect this as well. The Response to Intervention (RtI) model is a preferred strategy and mandated component in some states for identifying and labeling students with learning disabilities. RtI is a multi-step process for intervening and supporting students struggling with learning and behavioral problems (NEA, 2007, p. 22) and involves using research based interventions. Even though the findings of the reviewed literature indicated that there was hope for successful interventions for some students, studies from and Hibel et al. (2010), Hibel and Jasper (2012), and Zima et al. (1998), suggested that not all students who may need support actually have access to interventions as part of the special education referral process. Some early intervention programs such as Early Head Start were also found to be successful, but not successfully supporting the large numbers of the students that likely need more help due to risk factors (Peterson et al., 2004). An overwhelming amount of evidence identified that there may actually be an under-representation of students living in poverty who receive special education services for learning disabilities. Hibel and Jasper (2012) discussed the large policy focus on eliminating false positive special education identifications, but weighed in on the importance of access to early intervention, leaving some major decisions to be made by educators.

Authors like Coutinho et al. (2002) , Hosp and Reschly (2004), MacMillan et al.(1996), and Skiba et al. (2005), attempted to answer questions related to issues of unequal representation in special education, and considered racial inequality and racial bias as potential causal factors

for current representations. Even though a wide range of variables were studied in schools across the nation, the research did not conclusively point to consistent indicators of learning disability predictors or over-representation of one racial or demographic factor. More research considering independent achievement was identified as needed based on these studies. Ensuring high-quality education and thorough intervention programs for struggling students is difficult to monitor because of the intersecting racial issues with high-poverty schools also having a high number of racial minority students, issues related to the "frog pond-effect", according to Hibel et al. (2010). Based on the research findings, more needs to be done to not only rule out environmental impacts for learning difficulties, but to monitor individual student achievement and ensure each student has access to quality teaching using interventions that are proven to work for high-poverty schools.

Professional Application

The research in the literature reviewed illustrates that while there may be some issues with racial overrepresentation in special education, an additional pressing issue is the lack of access to special education services for students who potentially have learning disabilities or other academic needs. Students living in poverty, due to their increased exposure to multiple risk factors, as well as their increased likeliness to be attending schools with high poverty rates, are being underserved and possibly under-referred for special education due to varying causes. Some of the findings are counter to previous information that indicates racial biases are leading to overrepresentations of minority students in special education (NEA, 2007). The research based on individual student needs is important for policy makers to consider. Would we rather have students who need help not get it or students get special services that do not need them? It is increasingly difficult to separate the environmental impact on learning from actual learning

disabilities, but maybe this is not the focus educators should have because if a student needs help, it needs to begin with early quality instruction.

Additional policy implications highlighted in the research considered English Language Learning (ELL) students and students who live in shelters or move frequently. Students learning English as a second language theoretically should have similar rates of learning disabilities as students with English as their first language, yet it is common for teams to delay identifying special education needs for these students due to the prioritization of their language needs (Hibel & Jasper, 2012). While it is difficult to fairly assess students for learning disabilities who do not speak English fluently, policies should consider the academic impacts of delaying crucial interventions for struggling students. Regarding students in shelters and those who move frequently, some research suggested a fast-tracked process for disability identification and more community-based services for special education (Zima et al., 1998). As a result, special education teams and educators need to consider all of the additional burdens faced on a daily basis by students living in poverty or in low-income situations. Educators should also weigh the costs and benefits of identifying these students with a disability in the area of special education with the focus of giving them the correct services at a time that will provide the greatest benefits.

Limitations of the Research

In my research, I attempted to find the most updated, current, and generalizeable information to determine trends that reflect our current educational system in the United States, however, many of the studies included in my research were longitudinal studies with valuable findings and, by the nature of longitudinal studies, the research data spanned back in time. I excluded any research published prior to 1990 with a preference for information dated after the No Child Left Behind Act was implemented in 2001. Education in the U.S. seemed go through a

plethora of changes thereafter. I did not include any data from other countries as the educational system in the U.S. is very different from that of other nations. I additionally excluded information that focused primarily on teachers as a cause for overrepresentation in special education because I wanted to find out more about correlations with students' academic needs and home life situations, as well as relationships among demographic variables. Information about teachers' roles in identifying students with disabilities and learning difficulties was discussed in a few studies, but was not a key focus of the research in the literature review.

I expected to find more direct positive correlations between poverty and learning disability rates, but this data was not necessarily available nor was there a clear correlation. In fact, the information in my review pointed in the opposite direction to the issues of underrepresentation of certain low-income students based on high levels of potential needs and repeated exposure to multiple risk factors. I also expected there to be clear cut relationships between demographic variables and special education services, but the relationships between race, poverty, gender, and educational setting were extremely complex and more research is needed.

Further, I expected to find out more about the Head Start Program in terms of success and failure related to increased student academic gains and preventing school age disability diagnoses, but this research was not readily available. Barnett (2007) reviewed information related to the overall success of the Head Start Program, finding that many studies did not show significant improvement with academic skills, those that would close the achievement gap, but some positive correlations with social-emotional and cognitive development were noted (675). I was hoping to find out about any links Head Start had to rates of poverty and special education services, but the information mostly indicated that while Head Start serves many students with

high needs, there are many more students with equal or greater needs who do not receive special education early intervention services (Peterson et al., 2011).

Based on all of the information found in the literature review, I still find myself asking about how educators should ensure that students in high-poverty schools get enough out of their educational services. Moving towards RtI in all schools is good practice, but what about the students with prioritized English language services or the students who move around frequently or have very low attendance rates? What about the students who need extra help, but attend schools with a large majority of the population with similar needs? How do educators ethically serve all of these students who are impacted by their environment?

Implications for Future Research

Based on the research reviewed, it is difficult to say that students living in poverty are more likely to be identified as having learning disabilities, even if they are more likely to struggle in school. In fact, research done by Hibel et al. (2010), Hibel and Jasper (2012), Mason-Williams (2015), and Zima et al. (1998), indicated that students living in poverty, who may actually have disabilities, are not getting the appropriate services for various reasons. Zima et al. (1998) indicated that high- mobility is a barrier to appropriate services for these students, but there is also the "frog-pond effect" (Hibel et al., 2010) and the issues with prioritization of English language services over special education services early on for English Language Learners (Hibel & Jasper, 2012). More research needs to be done that addresses some of the difficult positions special educators are faced with regarding appropriate referrals and evaluation results for students.

In addressing questions about current intervention strategies, more research should be done on a large scale to find out if effective small scale interventions could also work in schools

to help reduce poverty's wide impact on education. Policymakers need to consider the Head Start Program and make some changes based on the intervention research and follow up consistently with students at the highest risk. Making larger intervention programs and increased community services could potentially reduce poverty. Ideas proposed by Duncan et al. (2007) should be considered for future research. This may lead to more answers about providing "high quality education" for students repeatedly exposed to risk factors.

As I was considering whether educators rule out poverty as a primary interfering factor to learning in the qualification criteria for learning disabilities, I discovered that this is possibly not in the best interest of the students. It remains unclear if just labeling students with disabilities for them to get needed support is the correct course of action. However, without streamlined academic intervention strategies across the nation, it is difficult to ensure support for each unique student; especially when the effects of poverty are so widespread. Consideration of the language in the learning disability rule-out criteria may be part of future implications based on the findings of this literature review.

Conclusion

Poverty's impact on student academic achievement is confirmed, but questions remain regarding the impact it has on the referral and qualification processes for the special education category of learning disabilities. With the intersection of race and poverty being so complex, the research demonstrates that it is difficult to identify the right number of students for specialized services without disproportionately identifying some groups of students. The most critical information revealed in this literature review is the fact that there are many students living in poverty or low-income situations who are not getting the help they need to succeed because they do not have the same access to special education or related services as other students. Current

academic classroom interventions can work for students, but more information is needed to make these accessible to all of the students who could benefit from them. Based on wide-spread, intersecting student needs, educators should continue to identify those students at-risk for learning difficulties and intervene as early as possible without so much caution regarding potential over-representation. This calls for policy changes and a closer look at processes for labeling students with academic special education needs.

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