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Equitable Identification of FRL-eligible Gifted and Talented Students

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Murray State University

Josie L. Pickerill

Committee Approval Page

This Dissertation Manuscript, directed and approved by a Dissertation Review Committee, has been accepted by the Doctor of Education Program of Murray State University's College of Education and Human Services in partial fulfillment of the requirements for the degree.

Equitable Identification of Gifted and Talented Students

By

Josie L. Pickerill

For the degree of

Doctor of Education in P-20 and Community Leadership (Ed.D.)

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Dr. Robert Lyons, chair

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Dr. Echo Wu

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Dr. Samir Patel

University Approval Page

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Abstract

The focus of this research study was the equitable identification of Kentucky students in the general intellectual gifted and talented category. A quantitative study was used to identify relationships between a student's socioeconomic status and identification. Statistical methods were used to examine statistical relationships between identification methods and socioeconomic status. A policy review was completed to determine if policies of highly equitable districts were comparable to low-equity districts.

Keywords: *socioeconomic, gifted and talented, identification, general intellectual, equity*

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Chapter 1

The first chapter introduces the reader to the overall study completed. This study focused on the disparities of identification of gifted and talented students based on socioeconomic status. The context of the study was explained to provide background information important to understanding the study as a whole. The purpose of the study, research questions, and hypotheses identify the specific information investigated in this study. The scope and significance of the study are presented to provide a foundation for why the study was conducted and to share the background on the population examined. Definitions and abbreviations are presented to support understanding of the material in this study-specific setting.

Introduction

In the field of gifted and talented education, students identified as economically disadvantaged, minorities, or English language learners (ELL) were often under-represented. Minorities were statistically outnumbered compared to the number of affluent, white, or non-ELL students identified for participation in gifted programming. This study was designed to examine the tools and strategies used for the equitable identification of gifted and talented students, particularly students who were eligible for the federal free and reduced lunch program (FRL). Research demonstrated that many of the methods and tools used for the identification of gifted and talented students presented biases against students identified as economically disadvantaged (VanTassel-Baska, Johnson, & Avery, 2002). Each assessment used in this study has technical characteristics that identified the population sample on which the norms were calculated and determined (Johnsen, 2011). Gifted assessments were commonly normed on populations of students that were not representative of the general population of a community, skewing the results toward a particular subset of the population (Valencia & Suzuki, 2001). This

study determined the identification methods for Kentucky educators to use that were better suited to the identification of FRL-eligible students.

Without a proper understanding of the biases present with the current gifted and talented identification methods, gifted education coordinators or teachers may unintentionally use measures that were biased against FRL participants, reducing the chance of identification for these students. While best practices for the identification of a gifted and talented student specified the use of multiple data points, a single data point that was biased against a student of economic disadvantage may eliminate him or her from consideration. In several districts, assessments were utilized as screeners and established a gateway to progress through for further screening measures. Another example of an identification gateway was the use of teacher recommendations. If a child's opportunity to be screened rests on being recommended by the teacher, then the teacher must have an understanding of the characteristics of a gifted student independent of characteristics of the child's economic situation that may be evident. Teachers without this understanding or without unbiased tools may unintentionally eliminate FRL-eligible students from consideration for gifted programming.

Teacher referrals, for instance, were used to identify students for consideration and placement in gifted and talented programming. Students who were economically depressed may present with different characteristics than their more affluent counterparts. Teacher referral forms were predominantly created at the district level and were developed based on criteria shared by teachers, psychologists, or counselors who determine the characteristics of a high-performing student, such as completing assignments, getting high grades, attending to classroom rules, and other desirable characteristics. Teacher referral forms created in the district may not account for characteristics that economically disadvantaged gifted students may possess. Gifted and talented

students who were impoverished may not have the number, breadth, or academically advanced background experiences that their more affluent counterparts may possess. Based on this notion, teachers may overlook students who, if given the same opportunities as more affluent peers, would perform much higher in different economic situations.

Assessments used to identify gifted and talented students in the area of general intellectual ability can also promote biased identification of students. Johnsen (2011) stated that each assessment has normative samples that were used to create statistical constructs of the assessment. Norming scores of assessments can be more appropriate for certain populations based on the normative sample. Teachers and administrators at public schools in Kentucky have the option of using local norming for populations in the district to localize stanines. However, this strategy was not frequently used to identify gifted students. The use of local norms can be an equalizer in terms of socioeconomic status (Dorn, 2009).

Many assessments require students to possess high-level reading skills. Ability assessments were focused more closely on skills such as reasoning, quantitative understanding, verbal ability, and nonverbal ability rather than a child's ability to read; however, assessments that require students to read passages may present challenges towards less skilled readers. Assessments that require a student to listen to oral directions may be skewed against populations that have had more access to the academic skills of listening, speaking, and reading literature (Slocumb & Payne, 2000).

Due to identification practices, such as teacher recommendations, students of an economic disadvantage were frequently not identified for gifted and talented programming at the same rate as their more affluent peers (Terman, 1925). Because these students were not identified for gifted and talented programming, they were denied access to appropriate educational

experiences that support their achievement (Plucker, 2015). Additionally, students who were identified as gifted and talented may require specialized academic and socio-emotional support to facilitate the academic enhancement of their skills. Finally, students who were overlooked for gifted and talented placement will likely not achieve at the level of their ability due to a lack of support for academic achievement and challenges that were appropriate for the child (Plucker, 2015).

Some students who were truly gifted and talented require specialized services to enable the students to meet their potential. Lind (2001) has suggested that gifted and talented students need support in socio-emotional areas due to over-excitability and asynchronous development in all academic, social, and emotional areas. Without first being identified for gifted and talented services, these specialized supports were less likely to be provided to children who would benefit from services.

Context of the Study

A quantitative analysis of tools used for evaluation of Kentucky students in the area of gifted and talented was completed. This analysis identified tools that showed a statistical correlation to the identification of FRL-eligible gifted and talented students. The tools, evidences, and assessments examined were based on those identified in *Kentucky's Administrative Regulation 704 KAR 3:285*. This regulation identifies definitions, assessment requirements, and requirements for gifted and talented identification. Local school districts develop policies and procedures that were implemented to identify and service gifted and talented students. These policies were reviewed for identified districts.

The proportion of students eligible for FRL for the district and the gifted and talented population was examined with a focus on one area of identification. This study only focused on

the gifted and talented identification area of general intellectual ability. Therewere11 other areas of identification that were not examined in this specific study. These areas include: (a) leadership, (b) creativity, (c) art, (d) music, (d) dance, (e) drama, (f) mathematics, (g) language arts, (h) science, and (i) social studies. Gifted and talented data was collected through a data request Memorandum of Agreement with the Kentucky Department of Education. Student-level data of identification evidences and FRL-eligibility was collected in aggregate form from the Kentucky Student Information System (KSIS).

Based on statistical analysis, the 5 districts with the most equitable identification rates and the 6 districts with the least equitable identification processes were identified. A quantitative methodology was used to compare tools and strategies used by these districts to identify general intellectual ability as identified in the *Kentucky Administrative Regulation 704 KAR 3:285*. In an effort to identify best practices for equitable identification, this study examined the tools, assessments, and methods of identification that increased the socioeconomic diversity of the gifted and talented population, specific to the area of general intellectual ability.

Purpose of the Study

The objective of this study was to determine tools and strategies used to identify a population as gifted and talented that mirrored the total demographic population of the district specifically in the area of FRL-eligibility.

Research Questions

Research Question 1. Does inequity exist in the identification of students for gifted and talented education based on identification of socioeconomic status (FRL-eligible vs. FRL-ineligible) for the 173 school districts in the state of Kentucky?

Research Question 2. Are there specific criteria or evidences that are used in order to qualify students from low socioeconomic status versus students from higher socioeconomic status when considering the terms of eligibility for gifted and talented services?

Research Question 3. Do 'high-equity' school districts use the sources of evidence identified as more equitable when identifying students from poverty at a higher rate than 'low-equity' districts?

Hypotheses

Hypothesis 1. There will be no relationship between the rate of identification of students as gifted and talented in the area of general intellectual ability and the socioeconomic class/status of the students for the 173 school districts in the state of Kentucky. (Null)

Hypothesis 2. There will be no relationship between the economic class of students and the use of any one of the sources of evidence to identify students as eligible for gifted and talented services in the area of general intellectual ability.

Hypothesis 3. There will be no relationship between the sources of evidence used by high-equity and low-equity districts in identifying students eligible for services as general intellectual ability.

Note: Districts falling within the 1st and 9th stanine will undergo a policy review. High-equity and low-equity will be established by rank ordering the districts based on Chi-square test of independence values.

Scope of the Study

The study focused on 173 school districts in the state of Kentucky. Using statistical methods, 32 districts were eliminated due less than 5 students in the total district population

being identified as FRL-eligible or gifted and talented. Public school students in Grades 4 through Grade 12 were identified for gifted and talented services in the area of general intellectual ability, and students in Kindergarten through Grade 3 were not included in this study.

The study was based on the definitions and identification methods allowed by the *Kentucky Administrative Regulation 704 KAR 3:285* regarding programs for gifted and talented. Other states may have varying identification processes outlined in state statute, rule, regulation, or law. Kentucky school districts were locally controlled by an elected board of education in each of the 173 school districts. Each district must create local identification processes and procedures to identify and service students within the school district in the area of gifted and talented education. This policy and procedure must minimally meet alignment with the *704 KAR 3:285*; however, the district can make the identification procedures stricter than the state regulations. The locally adopted procedures may also identify the assessment that must be used as well as the identification pieces that must be used when identifying the student. If a district was not aware of equity provisions within the regulation at the time of drafting of the procedures, it was possible that the district may not have included these provisions in the board-approved policy and procedures. As such, a change in the procedures would require a board of education action to change.

Significance of the Study

This study identified the presence of relationships between the socioeconomic status of Kentucky students and their identification for gifted and talented services. Because relationships between socioeconomic status and identification existed across the state as a whole, the identification of students of lower socioeconomic status for gifted programming occurred at a lesser rate than their higher socioeconomic status peers. The identification of this discrepancy

called attention to biased identification methods, evidences, and practices in gifted and talented programming.

After the discrepancy between lower socioeconomic status students and their more affluent peers was identified, the study identified evidence pieces that were more prone to bias due to socioeconomic status. Each source of evidence used in the state of Kentucky was examined using a Chi-square test of independence and an odds ratio to determine the propensity of the source of evidence to be biased based on socioeconomic status of students. In addition to an examination of overall evidence pieces for bias, standardized assessments used for identification were examined individually to determine which of those assessments were prone to impact the proportion of students of FRL-eligible students identified as gifted and talented.

After reviewing the individual evidences for bias, each school district in the state of Kentucky was examined to determine the level of equity in identification. The districts were ranked based on Chi-square test of independence from highest to lowest to determine the most equitable and least equitable school districts in the state of Kentucky. The policy practices for each district in the high-equity and low-equity district were examined. This process identified policy practices that resulted in a more equitable procedure to identify the population eligible for gifted and talented services.

The information from this study can be used to call attention to presently unrealized identification discrepancies. Additionally, the information can inform districts about identification practices used that created a gifted population that was more economically diverse. Finally, this study identified practices in policy implemented to increase the identification of lower socioeconomic students for gifted and talented programming.

The methods used in this study can be utilized to explore other areas of gifted and talented identification such as specific academic aptitude, creativity, leadership, and visual and performing arts. Once demonstrated as an effective methodology for identifying strategies that increase gifted identification and service of economically diverse gifted and talented populations, this study structure can be applied to a number of other equity related studies focused on participation in advanced programming.

This research further supports ideas around the concept of identification. Prior reports issued such as the *Marland Report* focused on procedures related to the identification, assessment, and service of gifted and talented students. This study confirmed the continued persistence of identification issues identified in the *Marland Report*. Nationally, the proportion of non-affluent students performing at the advanced-level continues to be low and remains stagnant or increased only slightly in the last decade (Olszewski-Kubilius & Clarenbach, 2012). This report focused specifically on Kentucky and the progress made since the issuance of the *Marland report*. Findings can be shared with other states to encourage appropriate identifications. Continued disparities can be used to shed light on identification practices in need of revision throughout the state and nationally.

Definitions and Abbreviations

The following definitions and abbreviations will be used.

> **Gifted and talented student.** A pupil identified as possessing the potential or demonstrated ability to perform at an exceptionally high-level in general intellectual aptitude, specific academic aptitude, creative or divergent thinking, psychosocial or leadership skills, or in the visual or performing arts.

Economically disadvantaged. The status of a student who qualifies for free or reduced-priced meals. Students with a household income below 130% of the federal poverty guidelines qualify for free meals. Students with a household income between 130% and 185% of the federal poverty guidelines qualify for reduced-price meals. Families receiving food stamps, benefits under the Food Distribution Program on Indian Reservations or, in most cases, benefits under the Temporary Assistance for Needy Families (TANF) program qualify for the free lunch program.

Intelligence test. A standardized test used to establish an intelligence level rating by measuring a subject's ability to form concepts, solve problems, acquire information, reason, and perform other intellectual operations.

Disadvantaged. One who operates under conditions detrimental to normal cognitive or affective growth due to socioeconomic limitations, cultural factors, geographic isolation, or various combinations of these factors to a degree that requires special considerations.

GT. Gifted and Talented

KAR. Kentucky Administrative Regulation

GIA. General Intellectual Ability

CogAT. Cognitive Abilities Test

NNAT. Naglieri Nonverbal Aptitude Test

OLSAT. Otis-Lennon School Ability Test

Summary

The study focused on possible bias in the identification of students from lower socioeconomic backgrounds as gifted and talented. Kentucky’s 173 public school districts were examined using statistical tests to determine appropriate evaluation and identification methods

for increasing socioeconomic diversity of gifted and talented students. The information provided may guide the development of policy and procedure by the Kentucky Department of Education for the evaluation of state regulations, laws, or rules related to gifted and talented identification. Being identified for gifted and talented was the gateway to individualized services for these students.

Chapter 2

A historical foundation section was provided used to support an overall understanding of the origination and the development of the field of gifted education, then narrowed to focus on national reports related to gifted and talented education. The identification of gifted and talented children was explored in depth to support an understanding of the processes, tools, and concerns around identification. Models of service, that were sensitive to lower socioeconomic status students, were explored to identify promising practices that could be used to increase equitable identifications. This chapter concluded with a reiteration of the importance of an unbiased system of identification in the area of gifted and talented education.

Historical Foundations and Theories Related to Gifted and Talented

Gifted and talented education was an educational specialty area situated within the larger landscape of elementary and secondary education. In the earliest context of general educational initiatives, students typically were served in a class-based system. Students from more affluent families benefitted from advanced educational opportunities, while students living in poverty were not able to participate in a number of educational systems. This method of sorting children based on the socioeconomic status continues. This study will identify how students living in poverty received opportunities for gifted and talented services at a lesser rate than their more affluent peers.

Cultural norms and morality of groups of people were important when examining the education of general populations of students and gifted populations. This was true across cultures and ages. In ancient Athens, for example, students who were upper-middle class were afforded opportunities not available to less privileged counterparts (Davis, Rimm, & Siegle, 2011).

Commoners, which today might be defined as individuals from a low socioeconomic status, were typically not educated in the traditional sense of the word.

The thought of educating students based on intellectual ability rather than the social class can be traced back to Athens when Plato's academy charged no fees and selected students, both male and female, based on intelligence and physical stamina rather than social status (Davis, et.al., 2011). While Plato's academy served students without regard to income or class level, the generally accepted reasoning in the Roman educational arena was that boys were of significantly higher value that their female counterparts.

In the Roman view, males were more skilled with architecture, engineering, law, and administration. While Plato's academy did not accept students based on class, it was likely that the effects of the cultural norms at the time provided a superior education to males of any income level when compared to their female counterparts (Davis, et.al., 2011).

Early China also placed a high value on gifted students. Intellectually superior students, beginning with the Tang Dynasty in A.D. 618, identified child prodigies and sent these students to imperial court for the recognition and cultivation of these gifts and talents (Davis et al., 2011). During the period of Confucius' influence (around 500 B.C), Chinese leaders recognized that education should be available to all children, and all children should be educated based on their individual abilities (Davis et al., 2011). The Chinese not only valued the education of gifted and talented children but also the education of all children. China's cultural norms around the time of Confucius placed a high value on the education of all children. This value system additionally brought about values related to the appropriate education of all students and matching needs with abilities.

The Japanese culture dictated that socioeconomic status at birth determined the opportunities that a child would be afforded (Davis et al., 2011). Children of Samurai warriors were trained in all areas of academic achievement. Commoners were not instructed in the same way as the Samurai children. However, some scholars established private academies for intellectually gifted children, both Samurai and common children (Davis, et al, 2011). These schools were unique in the respect that all children, regardless of their socioeconomic standing, were educated in a manner consistent with the gifted and talented needs that they possessed. Only in pockets of Japanese culture did this type of program exist that valued the education of common and Samurai children (Davis, et al, 2011).

Roots of giftedness in early America were sparse. As compulsory attendance legislation ushered in a period of education for all children, the focus shifted away from research on gifted students. Due to societal pressures of the time, education of all children was the priority. Gifted children were of little concern to the greater educational landscape during this period in American History. In 1869, Sir Francis Galton surmised that intelligence was hereditary in nature. Galton determined that distinguished individuals seemed to come from successive generations of distinguished families (Galton, 1869). Galton's book, *Hereditary Genius*, overlooked the strong environmental bias that individuals from distinguished families would most likely experience. These distinguished families had access to more opportunities due to fiscal resources. The number of books present, educational level of parents, and overall travel experience lacked examination in Galton's work. The lack of concern for these incidentals led to much later conversations about the credibility of his work.

Throughout history, it was evident that cultural norms played an important role in the education of children in the area of gifted and talented. Cultures that placed a high value on all

children were also credited with offering more support to gifted and talented children. As time progressed, the education of the gifted and talented population continued to hinge on the social landscape and the social context and value system of the period. Typically, a belief that all children can learn at high-levels was a precursor to the belief that education of the gifted and talented was necessary and productive for society and the individuals participating in gifted and talented programming. This belief was essential to ensuring adequate identification and education for impoverished students who were also gifted and talented.

Gagñe (2004) developed the "differentiated model of giftedness and talent" as a developmental theory that defined talent development "as the transformation of outstanding natural abilities or gifts into outstanding systematically developed skills, which define expertise of talent in a particular occupational field" (Gagñe, 2004, p. 119). This theory identified catalysts that helped or hindered the development of such talents. These hindrances were personal and self-management traits, socio-demographic factors, psychological influences, and chance (Gagñe, 2004, p. 119).

Gagñe (2004) affirmed that multiple macroscopic and microscopic factors influenced the development of a child's talent development. One factor identified as an environmental catalyst was the socioeconomic status of the family of a potentially gifted student. He further identified a need to identify significant characteristics that should be considered to be impactful on the development of talent. This awareness informed committees that identified students for gifted and talented programming. Without this knowledge, some students with high ability and aptitude were screened out of programming through the use of standardized assessment instruments. The research indicated that in order to effectively identify, nurture, and grow a student's gifts and talents, it was imperative to understand the environmental catalysts at play in the child's day-to-

day life. A child experiencing multiple catalysts viewed as negatively impacting the development of talent should be considered differently than a child with factors that typically influence the development of his or her talent positively.

Sternberg's Triarchic theory of intelligence suggested that intelligence was based on circumstances and scenarios; and focused intelligence in three areas: (a) analytic intelligence, (b) creative intelligence, and (c) practical intelligence. (Sternberg,1999). Researchers that subscribed to the triarchic theory believed that intelligence was based on cultural experiences that shaped intelligence. These subtle differences translated into specific and concrete effects on children and the way that their intelligence presented in school. Without an assessment and identification system that honored this theory, some students were not appropriately identified for gifted and talented services. Sternberg's (1999) Triarchic theory of intelligence suggests that each child should be evaluated with an instrument and measured in a way consistent with his or her cultural disposition. Students from a low SES were then to be measured against peers of the same cultural and socioeconomic background.

Sternberg designed a number of intelligence tests to attempt to identify students based on cultural backgrounds. Sternberg cautioned about traditional intelligence assessments. First, he suggested that conventional intelligence tests give a small picture of the intelligence of a child (Sternberg, 1999). Multiple areas of a child's intelligence were missed with the use of a traditional intelligence test. Second, creative and practical abilities were often missed in traditional intelligence assessments (Sternberg, 1999). The ability of a child in these areas was closely tied to intelligence; however, it was not accounted for in multiple intelligence assessments. Finally, children should be instructed in a way that reflects cultural strengths and abilities in order for the students to be as successful as possible. Memory and analytical abilities

were heavily assessed on intelligence assessments; however, these were not the only components of true intelligence (Sternberg, 1999).

Stanley focused his research on quantitative analysis related to intelligence. In 1969, a colleague at John's Hopkins University approached Dr. Stanley regarding a very precocious student within her computer science class. This colleague determined that Joe, then 13 years old, was the highest performing of all the students within his college level computer science class. Stanley, though resistant at first, met with Joe and his parents to determine potential strategies to help this student meet his potential. Stanley began working with local schools to determine if Joe, an eighth grader, would be allowed to take advanced placement courses, traditionally reserved for students in the eleventh or twelfth grade. Dr. Stanley's request met resistance from principals and headmasters.

Ultimately, it was determined that the most appropriate placement for Joe would be as a regular postsecondary student at John's Hopkins University. This decision was made based on Joe's remarkable performance on the SAT and other college placement assessments. While there was concern regarding these decisions, Joe thrived in the advanced college coursework traditionally reserved for traditional computer science majors. He completed the course work and began his doctoral program at the age of 17. This work led to the development of a model of identification and service still in operation today.

An acceleration model utilized in Fairfax County Public Schools called "Young Scholars" took a holistic approach to finding, nurturing, and developing talent in traditionally under-represented groups. Teachers at participating schools received annual training on the interests, needs, and abilities of the gifted students. Teachers completed a gifted behavior rating scale (GBRS) designed for the local school district with local norms created for subpopulations

of the district and utilized a non-verbal intelligence assessment to screen the population. Finally, the district reviewed a lengthy portfolio for each student with a focus on three key questions.

These questions were developed by Horn (2015) evaluated students for gifted and talented identification. These questions are: (a) Does the student lack access to gifted services? (b) Does the child lack an advocate for his/her high potential? (c) Does the child receive affirmation of his/her advanced abilities?

National Reports Related to Inequitable Education of Gifted Students

Inequities continued to exist in numerous aspects of the educational landscape. The lower standard for the education of low socioeconomic students has been highlighted throughout history. A number of national reports point to concerns related to the inequitable treatment of groups of individuals in the educational system. Each report called for specific action in the areas of education of all students. Additionally, several reports were related to the need for a comprehensive gifted education system that was free of bias toward low socioeconomic students.

The field of gifted education was not heavily studied at the national level in the United States until October 4, 1957. On this date in history, the Soviet Union launched Sputnik into the sky, winning the space race. The United States' reaction to the launch of Sputnik, coupled with an already ongoing criticism of the American educational system, set the stage for an unprecedented infusion of funding from the federal government to reform public education (Public Law 85–864). The National Defense Education Act (NDEA) was established to counteract the seemingly superior Soviet school system. The Soviet system focused on training young scientists. The system established by NDEA was focused on creating an "elite generation" of our own pipeline of Science, Technology, Engineering and Mathematics (STEM) workers (Jolly, 2009).

NDEA focused on funding America's most able and intellectually advanced students. In the National Defense Education Act, gifted and talented students were identified as a resource that must be developed to promote national security. Writers of NDEA identified gifted and highly capable learners as a group that could not be ignored (Jolly, 2009). The safety and security of the United States was dependent upon the development of all students to the highest of their ability. NDEA was successful in bringing about more rigorous courses for all students, including gifted students. In this case, the societal pressures of keeping the nation safe spurred the focus on education of all students, particularly those students who may be gifted and talented (Jolly, 2009). Due to the loss of the space race, the United States reacted to the societal pressure of national security by ensuring that all highly capable students, including students who were economically disadvantaged, were served in a manner that would lead to the increase of national security.

In 1972, the United States Department of Education issued the *Education of the Gifted and Talented Report* to the Congress of the United States by the Commissioner of Education, Sydney Marland (Marland, 1972). This report was created in response to a federal mandate identified in the reauthorization of the Elementary and Secondary Education Act Amendments of 1969. Within the reauthorization, Congress added a section of the law identified as "Provisions related to gifted and talented Children." This amendment required the study of: (a) the extent to which gifted and talented programs were necessary or useful in meeting the needs of gifted children; (b) identification of federal assistance programs for gifted and talented children; (c) evaluate how federal assistance programs can more effectively meet the needs of gifted children; (d) recommend new programs needed to meet the needs of gifted children (Marland, 1972).

The *Marland Report* was a research study of practices and procedures related to the identification, assessment, and service of gifted and talented students. The research that lead to creation of the report focused on a number of issues related to gifted education. One significant finding of the report was "The assumption that the gifted and talented come from privileged environments was erroneous" (Marland, 1972). Furthermore, the report reiterates the need for equal access for all students to have access to challenging curriculum. In the report, Marland (1972) stated that the full range of human talents was represented in all the races of man. He further stated that talents were present across all socioeconomic levels. Because talents occur among the poor and affluent in similar proportions, it was unjust and unproductive to allow socioeconomic status to affect the treatment of groups of individuals. The *Marland Report* also pointed out that little attention had been given to psychological factors that influence the aptitudes and achievement among poor students (Marland, 1972). The *Marland Report* also established the different areas for identification of gifted children. These identification areas included: (a) general intellectual ability, (b) specific academic aptitude, (c) creative or productive thinking, (d) leadership ability, (e) visual and performing arts, and (f) psychomotor ability (Marland, 1972).

The *Marland Report* was the first federal report of its kind focused specifically on the identification, assessment, and services that could be provided for gifted and talented students in the United States. The *Marland Report* brought attention to the lack of research, support, and information surrounding the topic of gifted education. The report identified the social injustice of identification disparities between socioeconomically challenged students and their more affluent peers. The spotlight focused again on societal norms and expectations ultimately led to changes

that led to a revitalized focus on the area of identification and service among socioeconomically disadvantaged students.

The *Equal Talents, Unequal Opportunities* Report (2015) examined state-level policy related to state support for academically talented low-income students. This report was created by the Jack Kent Cooke Foundation to strengthen research related to the Excellence Gap. The report was used to identify the types of policy indicators in state regulation influenced equitable opportunities. Equal Talents, Unequal Opportunities (2015) was one of a series of reports that have been funded by the Jack Kent Cook Foundation and identified inequities in advanced education.

Dr. Plucker and his co-authors (2015) examined a number of criteria for both inputs (policy decisions) and outputs (student outcomes) to create a report card for each state. (Plucker. Giancola, Haley, Wang, 2015). Kentucky was rated in the 2015 report as having earned a C+ based on the established criteria for inputs. Of all states examined, no state earned an A rating. Six states earned a B rating, those states were: (a) Alabama, (b) North Carolina, (c) Texas, (d) Minnesota, (e) Ohio, and (f) Colorado. Eighteen states, along with Kentucky, earned a rating of C for inputs. Twenty-four states earned a D rating for inputs. Three states: (a) Vermont, (b) Delaware, and (c) District of Columbia, earned an input rating of F. States earning a score of F tended to have no policies in place related to the education of gifted and talented children (Plucker, 2015).

Kentucky was rated as a C- for outputs. Outputs consisted of scores reported through NAEP and Advanced Placement testing. No state earned an A or F rating for outputs. Six states earned a rating of B, those states were: (a) Maine; (b) Massachusetts; (c) Minnesota; (d) New

Hampshire; (e) Utah; and (f) Vermont. Twenty-nine states earned a rating of C; and 16 states earned a D rating (Plucker, 2015).

Nationally, there has long been concern that high-ability students from vulnerable populations did not benefit from gifted and talented programming. Reversing underrepresentation required a better understanding of the reasons that students had been historically underserved. It was asserted that once an understanding was established related to underrepresentation, strategies, and tools to increase diversity in gifted and talented programs could be implemented. As national attention continued to focus on closing the learning gaps at the lower end of the achievement spectrum, another gap simultaneously demanded attention. The proportion of non-affluent students performing at the advanced level was low and remained stagnant or grew only slightly in the last decade (Olszewski-Kubilius & Clarenbach, 2012).

The Indiana University Center for Evaluation of Education Policy (CEEP, 2015) defined the "Excellence Gap" as the difference in the proportion of students from different demographic groups who score at the advanced level on student achievement tests. The percentages of students scoring at the advanced levels were very small for students who were economically disadvantaged. The Kentucky profile stemming from the follow-up *Talent on the Sidelines* (Plucker, Hardesty & Burroughs, 2015) reported an increasing gap between FRL-eligible students and FRL-ineligible students in Grade 4 and 8 math as well as Grade 4 reading.

“A First Look,” a report by the Office of Civil Rights, (2016) identified a number of under-represented populations of gifted and talented students. This annual report was mandated data collection authorized under the statutes and regulations implementing Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section

504 of the Rehabilitation Act of 1973, and under the Department of Education Organization Act (20 U.S.C. § 3413). "A First Look," (2016) highlighted annual data and statistics related to the education of individuals related to civil rights issues.

Black and Latino students comprise 42% of United States public schools with a gifted and talented program. Of those schools, only 28% of the gifted populations were Black or Latino students. Gifted populations were also disparate in the number of students identified in the areas of English Language Learners and students with a disability. The Office of Civil Rights does not report data related to FRL-eligible participation rates in the area of gifted and talented education. Students, however, who were identified as eligible for free or reduced lunch, were often also identified as Black, Latino, or English Language Learners. The Henry J. Kaiser Foundation (2016) identified 36% of Kentucky's Black students fell within the poverty range. Additionally, 42% of Latino students fall within the poverty range. Based on this relationship, it was assumed that the number of students identified for FRL-eligible would likely also be disproportionately represented under identified for gifted and talented services.

A Review of Gifted and Talented Identification and Characteristics

Lewis Terman was the first American researcher, in the early 1910's, in the field of gifted and talented education. Terman, a Stanford researcher, focused research in the area of identification of gifted and talented students. He began the most extensive longitudinal study of gifted children in history. Terman was interested in the use of intelligence tests to categorize children based on Intellectual Quotient (IQ) but also the impact of external factors on the IQ. The study, *Genetic Studies of Genius: Mental and Physical Traits of a Thousand Gifted Children,* (1925) had the purpose of determining how different an intellectually gifted student was from the average student. This study included measurements of physical, mental, and environmental

factors related to gifted students. Terman concluded that children who were identified as gifted had better health and physical characteristics than the group of individuals not selected for gifted participation (Terman, 1925).

Terman's study relied heavily on teacher recommendations and was focused in the state of California. Terman determined that gifted students would be defined as those with an IQ of 140 or higher on the intelligence tests used in the study. At times, students nominated by teachers were absent, so another child was assessed by the examiners. In some cases, it was determined that children were gifted who were not nominated by teachers, further validating the notion of teacher bias in the referral process. Terman asked a series of questions to teachers related to bright students. One of the questions in the study asked teachers to identify the brightest child in each teacher's class the prior year. Terman's results showed that "in the best schools, as identified by cultural norms, as high as 20% of the pupils enrolled were tested; in the poorest schools, as low as 2% were tested (Terman, 1925). Terman confirmed that the use of teacher recommendations was flawed and often did not yield satisfactory results when solely relied upon for identifying a pool of students to assess.

The results of the study were further confirmed by accidental mix-ups during testing. For instance, one child was brought to the assessment room by accident when the teacher misread her name for the name of another child nominated. The assessed child had not been nominated by the teacher and was the only child of a group of over 300 students to test with an IQ of 140 (Terman, 1925). The accidental discoveries of gifted students confirmed to the Terman team that a considerable number of gifted and talented students were being missed by the methods being used to identify students for assessment (Terman, 1925).

Rather than further exploring data related to the accidental discoveries, Terman's team applied this data in a manner that led to the further marginalization of poor students in the study. The team was directed to screen many more pupils in the "best" schools in the area and to test fewer students in the poorest schools as it was unnecessary to assess as many students in these schools (Terman, 1925). Terman learned that the majority of gifted students came from the San Francisco Bay neighborhoods in California. This area was close to Stanford University and more affluent than other areas of the state. The family economic background of the students was captured as a part of the study. The majority of the students nominated by teachers were from families with the father's occupation classified as professional (31%) or semi-professional (50%). Of the remaining students, 11.8% of the students came from a family where the father was a "skilled laborer" with 6.8% of the students coming from a home where the father was classified as a semi-skilled worker or unskilled worker. Terman's lack of inclusion of a balanced subset of the population was a liability of the research and perpetuated long-held beliefs that gifted children occurred more frequently in more affluent populations or communities. Families studied had higher annual incomes and double the schooling of an average adult. Due to fiscal and educational attainment, assumptions can be made that the environments where these children were raised were more enriched than average or poor families. These families were also able to experience enrichments outside of the home that other students would not be able to access (Jolly, 2008).

Terman's subjects predominantly consisted of Caucasian Western European heritage. This method of conducting research perpetuated biases regarding the ethnic and racial make-up of intellectually superior children. Of the gifted population, a startling statistic was the number of children who could point to intellectually superior individuals within his or her family tree.

Multiple families traced their genealogy to include: Presidents, writers, generals, statesmen, and Supreme Court justices (Jolly, 2008). Unfortunately, this study fortified Galton's earlier argument that genius was hereditary in nature. The methodology led to long-held beliefs that students of an economic disadvantage did not occur in the gifted population at the same rate as their more affluent peers.

So, while Terman's study was the first American study in the field of gifted education, flaws of the study were present in a number of areas. By marginalizing economically, linguistically, or socially disadvantaged students, Terman's findings failed to identify the disparities in identification and biases in teacher nomination and referral between students living in poverty and their more affluent counterparts.

In many districts and states, a teacher recommendation was a data point collected as a part of the identification process. Classroom teachers interact frequently with students. Because of this, they were able to observe students in multiple settings and contexts. Due to teacher ratings being a commonly used assessment to determine if students were screened for identification, teachers' beliefs, stereotypes, biases, and expectations can influence student participation in gifted and talented programs (Siegle, 2001).

As identified in earlier research, teacher bias was a limiting factor in the identification of gifted students from economically depressed backgrounds. Unfortunately, many teachers did not have a strong background in gifted education, nor training in the area of gifted education to understand the myriad of characteristics that gifted and talented students may present based on student background and area of giftedness. "The use of teacher nomination or rating without adequate staff development has been documented to reflect teacher bias, prejudice, and discrimination" (Dorn, 2009). In the 2007 study, *Fourth-Grade Teachers' Perceptions of*

Giftedness: Implications for Identifying and Serving Diverse Gifted Students, Neumister, Adams, Pierce, Cassady, and Dixon found that teachers who: had participated in a number of professional development days related to gifted education and had taught gifted and talented students did not appear to have a well-developed sense of giftedness. More specifically, these teachers did not have a clear understanding of how giftedness may manifest itself in minority and/or economically disadvantaged students. Additionally, the study found a mismatch between the definition of giftedness and the skills that students presented. A number of teachers identified students that had a skill deficit in one area as "Not gifted" due to not being exemplary in all skill areas. This mismatch in definition further confirms that bias that teachers may have by using a more traditional definition of giftedness as only the students with the highest IQ scores being truly gifted (Neumister et. al, 2007).

The use of teacher checklists and data points without a research base, norming, or hard evidence to guide the evaluation of student performance further exacerbates the issue of identification and service, particularly in students who have economic, ethnic, racial, or language acquisition barriers to access to needed services. The lack of training and support for teachers to appropriately understand and correctly identify students that present with characteristics outside of the traditional definition of gifted and talented continues the separation that has been apparent even prior to Terman's study of giftedness in 1910.

In *"A Framework for Understanding Poverty*," Payne (1996) characterized students living in poverty and how their skills surfaced during school or work situations. Students living in poverty exhibited a number of characteristics including (a) relying on current thoughts or feelings rather than long-term ramifications; (b) working for individuals that they like; (c) lacking conflict-resolution skills; (d) using survival language or casual register; (e) lacking in

emotional reservation; (f) embracing an extreme freedom of speech; (g) periodically needing time off from work/school due to family emergencies; (h) need for emotional warmth to feel comfortable at work or school; (i) exhibit possessive behaviors; particularly about people they love; (j) need for a larger amount of space for their personalities; and (k) demonstration of favoritism and preferential treatment to others (Payne, 1996).

Gifted experts agreed that gifted students living in poverty continue to be under-represented in the overall makeup of gifted and talented programming. The characteristics identified by Payne (1996) did not always appear on gifted and talented checklists, assessments, or parent rating forms. Students exhibiting these characteristics were labeled as behavioral problems or uncommitted to schoolwork by teachers. Researchers pointed to a number of issues related to the identification and service of gifted and talented students across the United States. Around 3.4 million K-12 children reside in house-holds with incomes below the national median rank in the top 25% of their group based on assessment scores. More than one million K-12 children who are FRL-eligible rank in the top quartile academically (Wyner, Bridgeland, & Diiulio, 2009).

Several issues influenced the identification and service of gifted and talented students living in poverty. Issues related to identification policies, state regulation limitations, assessment bias, teacher bias, and a lack of understanding by parents of the impact of poverty on a child's ability. When these issues were combined, the translation was a disproportionate identification of students living above the poverty line. Eligibility for free or reduced-price lunches has been identified as a poverty indicator for school aged students. An income of 130% or less of the federal poverty guideline met eligibility requirements to participate in free lunch programs.

Families that earned incomes between 131% & 185% of the poverty guideline were eligible for reduced-price meals (Burney & Beilke, 2008).

Despite the number of studies identifying disproportionate identification, practices that limit the identification of low-socioeconomic students continued. College graduation rates, attendance at prestigious colleges, and attainment of graduate degrees also demonstrate the disparity between poor and affluent students (Olszewski-Kubilis & Thomson, 2010). Without action in the PK-12 system, the cycle of gifted education serving the wealthy has been perpetuated. All students deserve the opportunity to benefit from needed services to meet the gifts and talents that were presented, no matter the child's economic status.

States, districts, or schools that had a gifted and talented policy, regulation, rule, or law had requirements within the policy that limited the ability of students living in poverty to be identified. South Carolina reformed gifted policy in the 1990's in an effort to increase equity among students living in poverty and minority students. During discussions, South Carolina legislators determined that the use of IQ scores solely was a limiting factor in the identification of gifted and talented students. South Carolina policymakers determined that the only way to increase the identification of gifted minority and impoverished students was to broaden the definition of gifted beyond the singular IQ score. Not only did this broadened definition create a mechanism for diversifying the population, it also created a larger base of support for gifted programming as a whole (Swanson, 2007).

Slocumb (2000) outlined the problems of being economically disadvantaged when considered for gifted placement. Treating students as equals resulted in under identification of FRL-eligible students. When all students were treated equally, FRL students were under-represented. Gifted and talented students from poverty cannot be identified or served as though

they were from non-poverty households (Slocumb & Payne, 2000.) Slocumb also identified the overarching problem surrounding gifted and talented identification programs. Slocumb stated that in many systems, opportunity rather than true giftedness was being identified. Students without opportunities experienced by affluent peers were marginalized in an opportunity based identification system.

Slocumb's work presents a model of identification that identifies opportunities or lack thereof compared to a student's skills, attitude, and motivation. This methodology appeared "unfair" as students received an environmental opportunities profile (EOP), which took into account a number of environmental factors in the identification of gifted students. These factors included items such as age of primary caregiver, presence of medical insurance, education level of primary caregiver, support system in home, and amount of lighting in the home environment. While Slocumb's work created dialogue around important issues in the equity of gifted programming, the use of the EOP tool took a considerable amount of time for each child that has an EOP completed. The EOP also requested information that was uncomfortable for families to answer. Due to the complexity of the profile, districts tended not use this type of equitable identification instrument due to the training, hours, and manpower needed to implement.

Alfred Binet can be credited with the development of modern intelligence testing. Binet was hired by the French government in Paris to design an assessment to identify children that would not benefit from regular coursework but instead needed specialized skill training. Until this time, teachers were predominantly responsible for the "tracking" of students in educational endeavors. In the 1890's, it was determined that teachers were often not the best judge of student abilities based on biases toward characteristics such as neatness and social skills. An intellectual assessment was designed to aid in the proper placement of students despite teacher opinions. At

the time of the study, it was noted that students were incorrectly placed in schools for the mentally challenged due to factors related to teacher perceptions as opposed to defensible evidence from an assessment (McGrew & Evans, 2004).

Binet's most significant contribution to the future of gifted education was the idea of mental age. Mental age was defined as intellectual maturity or readiness. Mental age did not correspond to an individual's measurable calendar age. As such, Binet determined that some students' mental age was higher than their physical age (Davis, et al, 2011).

Binet's work paved the way for the education of children based on mental abilities rather than age alone. Binet also identified methods of measurement that would help teachers, administrators, and parents identify a child's area of strengths and weaknesses. Of highest importance to the impoverished gifted population was the ability to assess students without teacher bias and opinions skewing results based on the teacher's experience with the student. Without the discovery of teacher bias skewing the gifted and talented population toward the middle and upper class, entire populations of students continued to be marginalized based on teacher perceptions of giftedness.

Assessment bias was another area of concern when considering the diversification of the gifted populations in schools, states, or districts. In many states, Kentucky included, gifted and talented regulations required the administration of a standardized assessment in the identification process for gifted students. The regulations or rule further explained the assessment type that must be utilized for each identification area. For instance, a test for the area of general intellectual ability was from a group of individual mental ability tests. Tests such as the cognitive abilities test, Otis-Lennon assessment, or the Naglieri Nonverbal were identified by *704 KAR 3:285* as assessments appropriate for group testing. Other assessments were administered in an

individual format such as the Weschler Intelligence Scale for Children (WISC IV), Woodcock-Johnson, or the comprehensive test of nonverbal intelligence (CTONI-2). Each assessment has technical characteristics that identify the population sample on which the norms were calculated and determined (Johnsen, 2011).

In many instances, gifted coordinators were not aware of this information due to a lack of coursework related to assessments and technical aspects of the assessments. Gifted personnel were often required to make decisions based on the cost of assessments rather than matching the test to the children tested. For instance, a district with a highly impoverished population selected an assessment normed on a more affluent population. This mismatch of norming groups immediately limits the population that may be identified for gifted identification.

In Kentucky, students were required to achieve a 9th stanine score on an assessment of intellectual ability. However, the definition of a student identified as having general intellectual abilities was a student that "has demonstrated or has potential" to perform at exceptionally high-levels in a number of mental capacities. The inclusion of the word "potential" indicated that the student was not required to demonstrate a particular ability at the point of identification. Kentucky does have a clause within the regulation that allowed students to qualify outside of the 9th stanine if the student met the definitions outlined as "special considerations". Special considerations included a number of issues including English language learning, economically disadvantaged, or a student with an individualized education plan. Coordinators struggled when using the "special considerations" portion of the regulation because the "how" of identifying students in this manner was not clearly defined.

In Kentucky, coordinators had the option to utilize local norms to identify students in traditionally under-represented groups. While the process of creating local norms was not

difficult, coordinators often did not use this route of identification. For instance, a child living in relative privilege who scored in the eighth stanine on national norms may not be eligible to qualify for gifted programming in the area of general intellectual ability. A student from an impoverished family, who scored in the sixth stanine on national norms may be in the top of the ninth stanine for the local norm subgroup. This student was identified for gifted programming in the area of general intellectual ability under the local norms or special considerations portion of regulation.

The idea of local norming was a difficult concept to explain to individuals who were not familiar with statistical practices, testing biases, and the benefits of using local norms. Additionally, explaining such a system to a classroom teacher who sees both students performing within the same classroom and believes the eighth stanine child was higher performing than the impoverished student presents a challenge. Finally, the explanation of such a system to parents of the student that did not qualify was viewed as an even more difficult process because of the lack of understanding about ways to level the starting gate inequalities. Many coordinators avoid the entirety of utilizing local norms for these reasons. A portion of the regulation designed to promote fairness, equality, and diversity, in the eyes of some, seems to marginalize economically advantaged students.

The use of nonverbal assessments for identification of students in the area of general intellectual ability was permitted by Kentucky's gifted and talented regulation. Assessments such as the Naglieri Nonverbal Aptitude Test (NNAT) assessed students utilizing only pictorial test questions. A student taking the NNAT may be successful without skills such as reading, writing, listening to oral directions, or interpreting directions on the paper. The use of assessments, such as the NNAT, was highly controversial in the field of gifted and talented education. Some gifted

and talented professionals believed that verbal abilities of a student was a necessary skill to be able to perform in gifted programming.

Experts on the alternate side believed that it was necessary to identify gifted and talented students by any means available and utilize instructional strategies to hone verbal aptitude and ability. Misconceptions regarding assessments such as the NNAT lay within the name of the assessment. Some individuals believe that the NNAT only assessed a subset of the skills that a student identified in the area of general intellectual ability may present. Other general intellectual assessments, such as the CogAT and Otis-Lennon, presented a nonverbal score as a subtest, which further confused the issue among coordinators. Other gifted professionals believe that the NNAT was a comprehensive test to identify high aptitude overall.

As identified throughout the literature, and throughout history, there was a moral obligation to provide equal opportunities when an area of inequity was identified. The Chinese held a sense of responsibility to educate all children. Some individuals in Japanese history recognized an equity gap and provided education to non-Samurai children. Sir Francis Galton and Lewis Terman both found evidence that children from impoverished families could achieve at high-levels in the same manner as children that were more affluent. The *Marland Report* cemented the need for children of poverty to have the same opportunities and access to gifted and talented programming as children of higher socioeconomic status.

Some individuals may ask why this type of inequity matters. Ultimately, it was a moral imperative that individuals be treated fairly and equitably in all areas of life. The Office of Civil Rights demands that public education is free from biases that limit the opportunities of a particular subset of the population based on any number of factors. In the United States, children were guaranteed a free and appropriate public education. The appropriateness of the education

was tied to the individualized needs of the child. Gifted and talented children have specific needs that must be met in order for these students to reach their achievement ceiling. If, in the United States of America, a systematic approach does not exist to ensure that students of economic disadvantage were identified in a manner that allowed for the identification and development of their specific gifts and talents, children were being denied access to the very education that was a civil right to children.

While the federal legislation does not specify gifted and talented identification strategies, gifted and talented children were included in Every *Student Succeeds Act* (2016) as a population of children recognized by the federal government. States had the authority to prescribe identification regulations. In Kentucky, *704 KAR 3:285* outlined strategies for identification of gifted and talented students. Without a proper training and understanding of this regulation, individuals inadvertently selected identification techniques that screened out economically disadvantaged students.

Though strategies were available to increase equity in gifted identification, areas of concern remain. Unfortunately, without a comprehensive and equitable identification protocol for students, the problem persists. Educators attempt to "pick-and-choose" the methodologies to increase identification; however, without a comprehensive method that takes into account all limiting factors, educators were unable to solve the issues of identification of gifted and talented students living in poverty.

Chapter 3

The overall design of the study was presented along with the data pieces collected for analysis during the study. The population of the study was described. Research instrumentation was shared, and variables were identified. The research questions presented focused on the data analysis procedures utilized specific to each research question and hypothesis. The data analysis procedure specific to each research question was explained.

Research Design

Data identified in Table 1 and 2 was collected from Kentucky Department of Education through a data request process that enabled the collection of data from the Kentucky Student Information System (KSIS).

Table 1

State and District level data FRL-eligible/FRL-ineligible

State and District populations				
	Total State Population	Total District Population	Total State GT Population	Total District GT Population
FRL-eligible	X	X	X	X
FRL-ineligible	X	X	X	X

Note- State and District GT population was based on GT identification area GIA.

Table 2

State level identification evidences collected

State level identification evidences collected Disaggregated by FRL-eligible/FRL-ineligible	
9th stanine test- all tests	Teacher referral
9th stanine test- Naglieri	Checklist data
9th stanine test- Raven Progressive Matrices	Portfolio evidence
9th stanine test- WISC	Other assessment data
9th stanine test- (CTBS)	Evidence of advanced reasoning
9th stanine test- other	Documented awards
9th stanine test- CogAT	Anecdotal data
9th stanine test- Kaufman Int. Test	Disadvantaged checklist
9th stanine test- Stanford Binet	Continuous progress data
9th stanine test- Woodcock Johnson	Informal assessment
9th stanine test- OLSAT	Gifted and talented committee referral
	Self-nomination

Districts selected as high-equity and low-equity for policy study were identified. Policies were retrieved from district websites and the district level policy manuals hosted on the Kentucky School Board Association Webpage.

The data, once collected, was used for statistical analysis to validate or refute the null hypothesis for each research question. Specifically, statistical analysis was used to identify the discrepancy between FRL-eligible students and FRL-ineligible students related to the frequency of gifted and talented identification. Additionally, statistical analysis was used to determine identifiers that show a relationship between the FRL eligibility and the student's gifted and talented identification. Finally, a qualitative policy review was used to determine policy factors that were present in high-equity districts. Also, policy factors that exacerbate inequitable identifications were identified.

Description of the Population

The 173 school districts for the state of Kentucky were studied. Data collected was for the 2013-2014 school year and was examined in terms of the number of students identified in the gifted and talented category of General Intellectual Ability, as well as the total identified as receiving free and reduced-priced lunches. The total number of students examined in the study for the 2013-2014 school year was 616,751. This data was collected through a data request processed by the Office of Technology. Using Kentucky's Open House online data warehouse, it was determined that 369,039 (59.83%) Kentucky students qualified for free or reduced-price lunch as identified by the national school lunch program. The statewide total of gifted and talented students for General Intellectual Ability for grades 4-12 was 32,682 (5.29%).

Additionally, selected districts were examined with regard to how each district identified students as gifted in the area of General Intellectual Ability. The procedure and instrumentation used for identification was obtained from school district webpages and the Kentucky School Board Association's online manual webpage. Procedures from the districts allowed for identification using a combination of the following: anecdotal data, disadvantaged checklist, continuous progress data, informal assessment, self-nomination, gifted and talented committee referral, teacher referral, checklist data, portfolio evidence, other assessment data, evidence of advanced reasoning, parent referral, documented awards, and 9th stanine test. The 9th stanine test was further aggregated by the type of assessment used. A description of these identification sources was provided in Table 24 and 25 of appendices.

Description of Research Instrumentation

The Kentucky Department of Education (KDE) required each school district to identify students as gifted and talented within the state's information system. Specific information

regarding the means by which school districts identified students as gifted and talented were reported using the gifted and talented identification tab in the student information system. The district enrollment and poverty data, specifically the number of students eligible for free and reduced meals and those ineligible, was collected from the Kentucky Department of Education through the Open House website related to the assessment and accountability system. Additional data sets, specifically gifted identification counts and identification evidences used, were requested from the Office of Educational Technology. Data requested was aggregated to prevent the release of any personally identifiable information. Each student's General Intellectual Ability record was reported in aggregate. Any individual identifier or district with an aggregate count of less than 10 students was removed from the data set to ensure that data met the FERPA requirements. Local district policies were collected using a web search of each district's website and a review of online school district policies on Kentucky School Board Association's policy manual.

Variables in the Study

There were two types of variables that were collected for the study. State-wide enrollment and demographic information in the form of headcount data, and district-level policy information regarding the instrumentation used as evidence to identify students as gifted and talented with General Intellectual Ability. The policy variable was actually a profile of twelve (12) categories within which the district chose one of an array of instruments for the evaluation of giftedness. This data presents as numerical for choices within each of the categories. A description of each identification category was summarized in Tables 24 and 25.

Procedures for Data Analysis

Data analysis for research question and hypothesis 1.

Research question 1. Does inequity exist in the identification of students for gifted and talented based on identification of socio-economic status as defined by federal free and reduced lunch eligibility?

Hypothesis 1. There will be no relationship between the rate of identification of students as gifted and talented in the area of general intellectual ability and the socioeconomic class/status of the students. (Null)

Data analysis procedure. The data analysis procedure used to determine if inequity exists for the identification of students as gifted and talented based on socioeconomic status included several key pieces. Initially, the gifted and talented demographic data for each district in the state was aggregated to represent the state as a whole. The number of gifted students identified as general intellectual ability was disaggregated in terms of federal free or reduced lunch eligibility (eligible, ineligible). To prevent the double counting of students, the number of gifted FRL-eligible students was subtracted from the total number of FRL-eligible students. The number of FRL-ineligible gifted students was subtracted from the total number of FRL-ineligible students to ensure that each student was only counted once for the statistical analysis.

A Chi-square test of independence determined if a relationship was present between the socio-economic status of students and the identification of students for gifted and talented. The Chi-square was best suited for this study due to the categorical nature of the data. A two by two contingency table was developed with the categories being gifted/not gifted and free or reduced lunch/FRL-ineligible. Assumptions for the use of the Chi-square test of independence were met. The data was categorical in nature. Each count in the contingency table was greater than five (5)

individuals. The standard *p* value of <.05 was identified as the significance level. As a *post hoc*, an odds ratio was used to communicate the discrepancy between the FRL/paid identifications once a relationship was established.

Data analysis for research question and hypothesis 2.

Research question 2. Are there sources of evidence that are more likely to qualify students from poverty as eligible for gifted and talented services?

Hypothesis 2. There will be no relationship between the socioeconomic class of students and the use of any one of the sources of evidence to identify students as eligible for gifted and talented services in the area of general intellectual ability.

Data analysis procedure. A data analysis procedure including Chi-square test of independences and odds ratios was used to determine if a relationship exists between evidence pieces used for gifted identification and socioeconomic status. Aggregated data was collected for each individual student across the state to demonstrate which of the twelve (12) evidences were used for identification. Data was disaggregated for each evidence based on students' FRL eligibility. A two by two contingency table was developed for each evidence piece to represent the number of FRL-eligible students identified using the evidence type and the number of FRL-eligible students not identified using the evidence type. The same process was used for FRL-ineligible students to complete the contingency table. This process was completed for each evidence piece that was used for identification of gifted and talented students. Table 3 is an example of the contingency tables that were developed, one table for each of the twelve types of evidence.

There was one modification to the contingency table development procedure. Because districts could choose from an approved list of assessments for the 9th stanine criteria, a

contingency table was developed for each of the different assessments used in addition to a table for the overall variable. For example, in addition to the overall 9th stanine, a contingency table was created for the Stanford Binet, which was one of the assessment options.

A Chi-square test of independence was utilized to determine if a relationship existed between the socio-economic status of students and the evidence used for gifted identification. The Chi-square was best suited for this research question due to the categorical nature of the data for each evidence piece. A two by two contingency table was developed with the categories being whether or not the student was identified as gifted and talented (yes, no) and FRL eligibility status (eligible, ineligible). Assumptions were tested to ensure the appropriateness of the Chi-square test. Specifically, the categorical nature of the data, each *n* count in the contingency table will be greater than five (5) individuals. The standard *p* value of <.05 was identified as the significance level. The Bonferroni correction was used to minimize the possibility of a false significance identification. An odds ratio was used as a *post hoc* to communicate the discrepancy between the FRL/paid evidences for those evidences that presented a significant relationship.

Data analysis for research question and hypothesis 3.

Research question 3. Do 'high-equity' school districts use the sources of evidence identified as related to identifying students from poverty at a higher rate than 'low-equity' districts?

Hypothesis 3. There will be no relationship between the sources of evidence used by high-equity and low-equity districts in identifying students as eligible for gifted and talented services for general intellectual ability.

Data analysis procedure. Two contrasting groups of the school districts were purposefully identified for this analysis. The equity level of school districts was defined in terms of the level of significance of the initial Chi-square analysis of all districts in the state. For example, the high-equity school districts were defined districts demonstrating the lowest relationship between FRL eligibility and gifted and talented eligibility. In contrast, low-equity districts demonstrate the strongest statistical relationship. A sample size of 11 school districts (representing the 1st and 9th stanine based on Chi-square test of independence) was used to review policies. Table 26 summarized descriptive statistics for these two groups, as well as for the state as a whole.

A Chi-square test of independence was repeated for each district represented in the study to determine if a relationship was present between the socio-economic status of students and the identification of students for gifted and talented. The standard p value of $<.05$ was identified as the significance level. Due to the repetition of the Chi-square test of independence, the Bonferroni correction was used to reduce the probability of identifying a significant result due to chance. The Bonferroni correction was useful for preventing false-positive results. The Bonferroni correction adjusts the p values when several dependent or independent statistical tests were being performed simultaneously on a single data set.

The Chi-square was best suited for this study due to the categorical nature of the data. Assumptions were tested to ensure the appropriateness of the Chi-square test. Specifically, the categorical nature of the data, each n count in the contingency table was greater than five (5) individuals. An odds ratio was used as a *post hoc* to communicate the strength of any significant relationship.

To complete the policy review, each district's policy was collected from either the local school district's website or from the school district's electronic handbook housed on the Kentucky School Board Association's online manual service web page. Each policy was reviewed using a holistic review of the overall policy. In order to collect specific data, evidence pieces allowed at the local school district level were identified for each district to determine similarities between policies of high-equity school districts and low-equity school districts. Due to the individual nature of each set of policies, general similarities between the policies were identified.

Chapter 4

A state perspective of gifted and talented identification based on socioeconomic status was analyzed. Next, evidences used to identify students for gifted and talented programming were examined for bias based on socioeconomic status. Tables were presented for each evidence to illustrate the overall sample for each group and the statistical analysis. Finally, the chapter closes with the district level analysis of equitable identification. Districts were identified for the policy review in the data display.

Data collection process

In order to complete the analysis and findings of the study, a data request was submitted to Kentucky Department of Education. The requested data included district level totals of the number of students identified as gifted and talented in the area of general intellectual ability disaggregated by socioeconomic status based on paid or free/reduced lunch status. In order to meet the legal requirements for the Family Educational Rights and Privacy Act (FERPA), districts with less than ten (10) students reported as FRL-eligible or ineligible were eliminated from the data set provided to the researcher.

State level analysis of equitable access

Based on agreed upon criteria, data was shared by the Kentucky Department of Education for 141 of 173 public school districts in the state. The districts that were excluded from the data reports had fewer than five (5) students in one reported area. This resulted in an aggregated data total 616,751 individual students, 369,039 students identified as FRL-eligible and 247,712 students were identified as FRL-ineligible. Table 3 disaggregates the total population and gifted and talented FRL eligibility data.

Table 3

Distribution of Gifted and Talented Identification and FRL eligibility

	Total Students		
	Gifted and Talented Identified	Not Identified for Gifted and Talented	Total
FRL-eligible	9,948	359,091	369,039
FRL-ineligible	22,734	224,978	247,712
Total	32,682	584,069	616,751

Research question 1. Does inequity exist in the identification of students for gifted and talented based on identification of socio-economic status?

Hypothesis 1. There will be no relationship between the rate of identification of students as gifted and talented in the area of general intellectual ability and the socioeconomic status of the students. (Null)

This analysis revealed a significant relationship between a student's socio-economic status, as identified by free and reduced lunch eligibility. (χ^2 (*3*) =748,112,388.0403, p = .00001). The statistical significance rejected the null hypothesis that there will be no relationship between the rate of identification of students as gifted and talented in the area of general intellectual ability and the socioeconomic class/status of the students. (Null)

Records for 616,751 students were examined based on the student's socio-economic status and the student's participation or non-participation in gifted and talented programming in the area of general intellectual ability. A relationship was present between socio-economic status and the likelihood of the student being identified for gifted and talented programming. Further analysis of the data indicated that about 2% of students who qualified for free or reduced lunch also qualified for gifted and talented services in the area of general intellectual ability. Of students that were identified as FRL-ineligible, just over 9% of students qualified for gifted and

talented programming. An odds ratio was calculated to further interpret the results. Students who were FRL-ineligible were 3.65 times more likely to be identified for gifted and talented than their FRL-eligible counterparts.

Analysis of tools used to identify students for gifted and talented programming

In addition to the state and district level data request, aggregated identification evidences were requested at the state level. This evidence was aggregated for the state as a whole and identified by FRL-ineligible status or FRL status. Any identification piece that had a total student count under 10 was eliminated to comply with FERPA guidelines and the Kentucky Department of Education's data request standards. Overall, fourteen evidence pieces were identified at a state level aggregated total. One evidence, 9th stanine test, was subdivided into the assessment selected by the district. Eleven different assessments were examined within the category of 9th stanine test.

Each evidence was examined using a Chi-square. Of the evidence pieces, eight identification methods showed no relationship between the evidence piece and the student's socio-economic status. Six evidence pieces showed a statistical relationship between the student's socioeconomic status and propensity toward identification. The evidence, 9th stanine test, showed statistical significance between the students' socioeconomic status and identification. Upon review of each individual assessment, it was determined that four assessments showed a relationship between identification and FRL eligibility.

Research Question 2. Are there sources of evidence that are more likely to be used to qualify students from poverty other students in terms of eligibility for gifted and talented services?

Hypothesis 2. There will be no relationship between the economic class of students and the use of any one of the sources of evidence to identify students as eligible for gifted and talented services in the area of general intellectual ability Chi-square repeated for each evidence. (p=.05/15= .00333) n= 32,000 individual students

The data collected for each evidence was placed in a contingency table with statistical analysis for each evidence identified for each table. The following evidences showed a relationship between socio-economic status and identification: disadvantaged checklist, informal assessment, gifted and talented committee referral, teacher referral, checklist data, 9th stanine test. Of the 9th stanine assessments, the following four (4) tests showed a relationship between identification and FRL eligibility: CogAT, Naglieri, Otis-Lennon School Ability Test, Raven Progressive Matrices.

Table 4

Distribution of Identification Methods for Disadvantaged Checklist (DC)

Identification Evidences	Identified Students		
	DC Used	DC Not Used	Total
FRL-eligible	414	9,534	9,948
FRL-ineligible	755	21,979	22,734
Total	1,169	31,522	32,682

This analysis revealed a significant relationship between identification with a disadvantaged checklist and being identified as gifted and talented between FRL-eligible students and FRL-ineligible students ($\chi^2(3) = 14.178$, $p < .000$). In 755 cases, students were identified for gifted and talented with a checklist for disadvantaged students when the students were not identified as socio-economically disadvantaged based on FRL. This evidence did not support the null hypothesis. An odds ratio was calculated to further interpret the results. Students that were FRL-ineligible were 1.26 times more likely to be identified for gifted and

talented than students that were identified as FRL based on the use of the disadvantaged checklist.

Table 5

Distribution of Identification Methods for Informal Assessment (IA)

Identification Evidences	Identified Students		
	IA Used	IA Not Used	Total
FRL-eligible	1,706	8,242	9,948
FRL-ineligible	2,814	19,920	22,734
Total	4,520	28,162	32,682

This analysis revealed a significant relationship between identification with a disadvantaged checklist and being identified as gifted and talented between FRL-eligible students and FRL-ineligible students (χ^2 (*3*) =132.185, p < .000). Less than one of seven students for the combined groups were identified for gifted and talented with a checklist using Informal Assessment. This evidence did not support the null hypothesis. FRL-eligible students were 37% less likely to be identified with an informal assessment measure than their FRL-ineligible counterparts based on the use of informal assessments.

Table 6

Distribution of Identification Methods for Gifted and Talented Committee Referral (GTC)

Identification Evidences	Identified Students		
	GTC Used	GTC Not Used	Total
FRL-eligible	1,812	8,136	9,948
FRL-ineligible	3,774	18,960	22,734
Total	5,586	27,096	32,682

This analysis revealed a significant relationship between identification by the gifted and talented committee recommendation and being identified as gifted and talented between FRL-eligible students and FRL-ineligible students (χ^2 (*3*) =12.721, p < .000). Of students identified as

FRL, 22.27% of students were identified by the gifted and talented committee. Students that were identified as FRL-ineligible were identified at a lower percentage rate at 19.91% being identified using the gifted and talented committee identification evidence. This evidence did not support the null hypothesis. Paid students were identified at a rate 18% higher than their FRL counterparts using the gifted and talented committee as an evidence for identification based on gifted and talented committee referral.

Table 7

Distribution of Identification Methods for Teacher Referral (TR)

Identification Evidences	Identified Students		
	TR Used	TR Not Used	Total
FRL-eligible	5,907	4,041	9,948
FRL-ineligible	14,132	8,602	22,734
Total	20,039	12,643	32,682

This analysis revealed a significant relationship between identification by the teacher referral and being identified as gifted and talented between FRL-eligible students and FRL-ineligible students ($\chi^2(3) = 22.606$, $p < .000$). This evidence did not support the null hypothesis. Free and reduced lunch students were identified a rate of 89% lower using the teacher referral than their paid counterparts based on the use of teacher referrals.

Table 8

Distribution of Identification Methods for Checklist Data (CD)

Identification Evidences	Identified Students		
	CD Used	CD Not Used	Total
FRL-eligible	4,463	5,485	9,948
FRL-ineligible	11,525	11,209	22,734
Total	15,988	16,694	32,682

This analysis revealed a significant relationship between identification by the checklist and being identified as gifted and talented between FRL-eligible students and FRL-ineligible students (χ^2 (*3*) =94.18, p < .000). This data was based on the district developed checklist of gifted and talented behaviors. Districts may also elect to purchase a normed checklist. The type of checklist was not identified in the data set. This evidence did not support the null hypothesis. When a checklist was used for identification, FRL students were identified at a rate of 79 times per 100 FRL-ineligible peers based on the use of checklist data.

Table 9

Distribution of Identification Methods- 9th Stanine Test (9th ST)

Identification Evidences	Identified Students		Total
	9th ST Used	9th ST Not Used	
FRL-eligible	9,651	297	9,948
FRL-ineligible	22,716	18	22,734
Total	32,367	315	32,682

This analysis revealed a significant relationship between identification by the use of a 9th stanine assessment score between FRL-eligible students and FRL-ineligible students (χ^2 (*3*) =612.354, p < .000). Since this data was able to be broken down by assessment used, further analysis was completed to determine the statistical significance or lack of significance for each individual assessment. This evidence did not support the null hypothesis. FRL students were identified at a rate of 2% lower than paid peers using a 9th stanine assessment based on use of the 9th stanine assessment score.

Table 10

Assessments Used for 9th Stanine Test Identification suggesting significant relationships

Assessment Used	χ^2 (*3*)	p value	Administration Method
Cognitive Abilities Test	79.612	.000	Group
Naglieri Nonverbal Assessment	54.588	.000	Group
Otis-Lennon School Ability Test (OLSAT)	161.373	.000	Group
Raven Progressive Matrices	409.865	.000	Group

This analysis revealed a significant relationship among four assessments and a student's FRL status. Statistical tests identified that the Cognitive Abilities Test (χ^2 (*3*) =79.612, p < .000), Naglieri Nonverbal Assessment (χ^2 (*3*) =54.588, p < .000), Otis-Lennon School Ability Test (χ^2 (*3*) =161.373, p < .000), and Raven Progressive Matrices (χ^2 (*3*) =409.865, p < .000) all presented with statistical significance. An important note regarding the data analysis of the assessments was the relatively small counts for the Naglieri Nonverbal Assessment at a total number of FRL students being identified with the assessment n=494, of paid students identified with the assessment, the count was relatively small as well n=768. A total n=1262 students participating in the Naglieri Nonverbal Assessment would yield a relatively small sample of the overall identification pool. This evidence did not support the null hypothesis.

The following evidences did not show a relationship between FRL eligibility and identification: anecdotal data, continuous progress data, self-nomination, portfolio evidence, other assessment data, evidence of advanced reasoning, and documented awards. Assessments that did not show a relationship between socioeconomic status and identification: 9th stanine test of Cognitive Skills (CTBS), 9th stanine Kaufman Intelligence Test, 9th stanine Stanford Binet Test, 9th stanine test WISC, 9th stanine test Woodcock Johnson, 9th stanine test (undefined name).

The data collected for each evidence was placed in a contingency table with statistical analysis for each evidence identified for each table.

Table 11

Distribution of Identification Methods for Anecdotal Data (AD)

Identification Evidences	Identified Students		
	AD Used	AD Not Used	Total
FRL-eligible	1,415	8,533	9,948
FRL-ineligible	3,412	19,322	22,734
Total	4,827	27,855	32,682

This analysis revealed there was no significance in the overall distribution of the use of anecdotal data for identification purposes (χ^2 (*3*) =3.382, p = .066). Based on total identifications, 14.76% of students were identified using anecdotal data as an indicator for gifted and talented identification. This evidence supports the null hypothesis.

Table 12

Distribution of Identification Methods for Continuous Progress Data (CPD).

Identification Evidences	Identified Students		
	CPD Used	CPD Not Used	Total
FRL-eligible	5,145	4,803	9,948
FRL-ineligible	11,386	11,348	22,734
Total	16,531	16,151	32,682

This analysis revealed there was no significance in the overall distribution of the use of continuous progress data for identification purposes (χ^2 (*3*) =7.404, p = .007). Based on total identifications, over half of all students identified as gifted and talented in both the FRL group and the Paid group were identified using continuous progress data for gifted and talented identification. This evidence supports the null hypothesis.

Table 13

Distribution of Identification Methods for Self-Nomination (SN).

Identification Evidences	Identified Students		
	SN Used	SN Not Used	Total
FRL-eligible	37	9,911	9,948
FRL-ineligible	117	22,617	22,734
Total	154	22,528	32,682

This analysis revealed there was no significance in the overall distribution of the use of self-nomination data for identification purposes (χ^2 (*3*) =3.005, p = .083). The limited use of self-nomination for identification points to a lack of ability for a student to nominate him/herself for identification, or a lack of understanding that such a process was included in identification processes. This evidence supports the null hypothesis.

Table 14

Distribution of Identification Methods for Portfolio Evidence (PE)

Identification Evidences	Identified Students		
	PE Used	PE Not Used	Total
FRL-eligible	414	9,534	9,948
FRL-ineligible	1,100	21,634	22,734
Total	1,514	29,168	32,682

This analysis revealed there was no significance in the overall distribution of the use of portfolio evidence data for identification purposes (χ^2 (*3*) =7.177, p = .007). The limited use of this evidence overall suggests that identification with this evidence may increase equitable identifications if utilized more frequently to identify students for gifted and talented. This evidence supports the null hypothesis.

Table 15

Distribution of Identification Methods for Other Assessment Data (OAD)

Identification Evidences	Identified Students		
	OAD Used	OAD Not Used	Total
FRL-eligible	3,118	6,830	9,948
FRL-ineligible	7,481	15,253	22,734
Total	10,590	22,083	32,682

This analysis revealed there was no significance in the overall distribution of the use of other types of assessment data for identification purposes (χ^2 (*3*) =7.721, p = .005). While the specific other types of data used were not explicitly identified for this evidence, the chi-square indicates that the use of other types of assessment data appear to allow for the identification of students in a more equitable way. This evidence supports the null hypothesis.

Table 16

Distribution Identification Methods Evidence Advanced Reasoning (EAR)

Identification Evidences	Identified Students		
	EAR Used	EAR Not Used	Total
FRL-eligible	461	9,487	9,948
FRL-ineligible	1,234	21,500	22,734
Total	1,695	30,987	32,682

This analysis revealed there was no significance in the overall distribution of the use of evidence of advanced reasoning data for identification purposes (χ^2 (*3*) =8.869, p = .003). The methodology utilized to collect evidence of advanced reasoning may vary by district; however, the increased use of this evidence as a measure may increase equitable identification. This evidence supports the null hypothesis.

Table 17

Distribution of Identification Methods Parent Referral (PR)

Identification Evidences	Identified Students		
	PR Used	PR Not Used	Total
FRL-eligible	1,748	8,200	9,948
FRL-ineligible	4,203	18,531	22,734
Total	5,951	26,731	32,682

This analysis revealed there was no significance in the overall distribution of the use of parent referral for identification purposes (χ^2 (*3*) =3.902, p = .048). The methodology utilized to solicit parent referrals may vary by district; however, the increased use of this evidence as a measure may increase equitable identification. This evidence supports the null hypothesis.

Table 18

Distribution of Identification Methods Documented Awards (DA)

Identification Evidences	Identified Students		
	DA Used	DA Not Used	Total
FRL-eligible	121	9,827	9,948
FRL-ineligible	234	22,500	22,734
Total	355	32,327	32,682

This analysis revealed there was no significance in the overall distribution of the use of parent referral for identification purposes (χ^2 (*3*) =2.253, p = .133). The methodology of collecting documented awards may vary from district to district; however, the collection of documented awards may be helpful in increasing equitable identifications of gifted and talented students from low socio-economic status backgrounds. This evidence supports the null hypothesis.

Table 19

Assessments Used for 9th Stanine Test Identification and Significance

Assessment Used	χ^2 (*3*)	p value	Statistical Significance	Administration Method
Test of Cognitive Skills (CTBS)	4.896	.027	no	Group
Kaufman Intelligence Test	5.388	.020	no	Individual
Stanford Binet Test	.119	.731	no	Individual
WISC	2.704	.100	no	Individual
Woodcock Johnson	.004	.949	no	Individual

These specific assessment data identifiers did not reveal a significant relationship among five named assessments and a student's socio-economic status. Statistical tests identified that the Test of Cognitive Skills (χ^2 (*3*) =4.8986, p < .026), Kaufman Intelligence Test (χ^2 (*3*) =.119, p < .020), Stanford Binet Test (χ^2 (*3*) =.119, p < .731), WISC (χ^2 (*3*) =2.701, p < .100), and Woodcock Johnson (χ^2 (*3*) =.004, p < .949), all presented without a significant relationship. This evidence supports the null hypothesis.

Analysis of District Level Equitable Identification for Policy Review

A Chi-square was completed for each of the 141 districts that had data released by the Kentucky Department of Education. Of the 141 districts, 118 districts showed a relationship between a student's socio-economic status and identification for gifted and talented programming in the area of general intellectual ability, and 23 districts showed no statistical relationship between the students' socio-economic status and gifted identification. This process was used for research question 3.

Research Question 3. Do 'high-equity' school districts use the sources of evidence identified as related to identifying students from poverty at a higher rate than 'low-equity' districts?

Hypothesis 3. There will be no relationship between the sources of evidence used by high-equity and low-equity districts in identifying students eligible for services as general intellectual ability. p=.00333 n=141 total districts to determine districts in 1st and 9th stanine. Districts falling within the 1st and 9th stanine underwent a policy review.

After determining the Chi-square test of independence of each individual district, the districts were sorted by the value of the Chi-square test of independence. After sorting, stanine values were applied to determine districts falling within the first and 9th stanine based on the Chi-square test of independence. For each of the districts identified in the 1st or 9th stanine, a policy review was completed for the district to determine what identification processes were different between districts deemed as high-equity districts as opposed to those deemed as low-equity districts. A randomized number was applied to each district to protect the identity of each district.

Table 20

1st stanine districts identified as high-equity for gifted identification based on FRL eligibility

School District Identification Number	District Classification	χ^2 (*3*)	p value	Odds Ratio
E1357986	Urban	1.293	0.255	1.4398
E1258671	Rural	1.510	0.219	1.6772
E1347682	Rural	3.998	0.046	2.035
E2315860	Urban	4.213	0.040	1.79
E6809808	Suburban	4.569	0.033	2.0515

*Odds ratio was reported as the number of times more likely a FRL-ineligible student would be identified when compared to a FRL student.

Each district identified in Table 20 did not show a relationship between the FRL-

eligibility of students and identification for gifted and talented. All districts were ranked based upon the Chi-square statistic that was calculated based upon the contingency table. The districts identified in Table 21 represent the 9th stanine for equitable identification. This means that of all districts in the state of Kentucky, based upon Chi-square statistic, these districts were identified as the most equitable in Kentucky. The local school district policies for each of these districts was reviewed based upon the evidences identified. Table 27 displays evidences collected based on local school district policy.

Table 21

9th stanine districts identified as low-equity for gifted identification based on FRL eligibility

School District Identification Number	District Classification	χ^2 (*3*)	p value	Odds Ratio
L1257946	Suburban	221.324	.000	4.072
L2236985	Rural	239.398	.000	2.882
L2139489	Rural	246.522	.000	4.4925
L7890750	Suburban	272.965	.000	4.0723
L4324908	Urban	1702.257	.000	6.7491
L6590845	Urban	5884.810	.000	5.1577

*Odds ratio was reported as the number of times more likely a FRL-ineligible student would be identified when compared to a FRL student.

Each district identified in Table 21 showed a significant relationship between the FRL eligibility of students and identification for gifted and talented. All districts were ranked based upon the Chi-square statistic that was calculated based upon the contingency table for each individual district. The districts identified in Table 21 represent the 1st stanine for equitable identification. This means that of all districts in the state of Kentucky, based upon Chi-square statistic, these districts were identified as the least equitable in Kentucky. The local school district

policies for each of these districts was reviewed based upon the evidences identified. Table 22 displays evidences collected based on local school district policy.

Table 22

Identification evidences from policy review high-equity districts

School District Identification Number	E1357986	1258671	E1347682	E2315860	E6809808
			Inequitable Identification Evidences Used		
Disadvantaged checklist			X	X	
Teacher Referral	X				
Informal assessment			X		
Gifted and talented committee referral	X				
Checklist data					
9th stanine test (as a gateway)					
CogAT			X	X (8th/9th stanine further assessed)	
Naglieri		X			X
Raven		X			X
Otis-Lennon					
			Equitable Identification Evidences Used		
Anecdotal data	X	X	X	X	X
Continuous progress data	X	X	X	X	X
Self-nomination			X	X	
portfolio	X	X	X	X	
other assessment data	X	X	X	X	X
evidence of advanced reasoning	X	X	X	X	
documented awards	X			X	
CTBS test					
Kaufman Intelligence Test					X
Stanford Binet					
WISC					X
Woodcock Johnson					
Teacher identifies considerations		X		X	X

Evidences identified in the policy review are marked with an “X”.

In high-equity districts, the majority of evidences collected were identified as "equitable identification evidences". In each instance, the district identified at least twice as many evidences in the equitable identification section compared to the inequitable identification section. No district used an assessment as a gateway to being further assessed.

Table 23

Identification evidences from policy review low-equity districts

School District Identification Number	L1257946	L2236985	L2139489	L7890750	L4324908	L6590845
Inequitable Identification Evidences Used						
Disadvantaged checklist						
Teacher Referral				X		
Informal assessment				X		
Gifted and talented committee referral				X		
Checklist data					X	
9th stanine test (as a gateway)	X	X	X	X	X	X
CogAT	X			X	X	X
Naglieri	X			X	X	
Raven						
OLSAT	X	X	X	X	X	
Equitable Identification Evidences Used						
Anecdotal data						
Continuous progress data						
Self-nomination portfolio						
other assessment data						
evidence of advanced reasoning						
documented awards						
CTBS test						
Kaufman Intelligence Test						
Stanford Binet						
WISC						
Woodcock Johnson						

Evidences identified in the policy review were marked with an "X".

In low equity districts, no evidences within the equitable identification area were identified as used for student identification for gifted placement. In all low equity districts, the assessments identified were low-equity based on this study. Only one district identified only an assessment as the sole identifier for gifted education. All districts identified an assessment as a gateway to additional testing.

Chapter 5

Major findings identified through the use of statistical analysis were described. Conclusions and recommendations for each research question were specified. Connections to the current literature base were identified, as well as limitations of the study. Finally, recommendations for additional research opportunities were shared to continue to grow the literature base in this area.

Summary

This study identified a statistically significant relationship between students' socioeconomic status, as defined by FRL eligibility, and gifted and talented identification in the state of Kentucky. It was determined that students of lower socioeconomic status were less likely to be identified for gifted and talented services in the state of Kentucky than their higher socioeconomic status peers. Socioeconomic status was determined using the Federal Free and Reduced Meals program identification.

Research question 1 conclusions and recommendations

Does inequity exist in the identification of students for gifted and talented based on the identification of socioeconomic status (FRL-eligible participants vs. FRL-ineligible participants)?

This study identified that Kentucky students living in poverty were less likely to be identified for gifted and talented programming than students living above the poverty threshold. This conclusion supported other research in the field of gifted education identifying the opportunity gap present in the identification of gifted students from low income families. While the inequitable identification was common among the research base for the gifted field, it was troubling to find this scenario in a state with regulatory provisions to support the equitable

identification of students. Due to continued inequity in the area of gifted education, it was evident that regulatory language was not enough to identify FRL-eligible students at a rate commensurate with their FRL-ineligible peers.

It was recommended that regulatory language and/or policies be updated to clarify the means for identifying gifted students in the area of general intellectual ability. In the event that regulatory language was not clarified, it was essential that the state education agency provides training to share the concern related to inequity and share strategies to increase equitable identification practices. Since there were a number of areas for potential identification included in the same regulation, it was possible that additional areas of gifted identification present with the same inequitable identifications as this study. Additional studies could confirm or refute inequity in other areas of identification.

Research question 2 conclusions and recommendations

Are there sources of evidence that were more likely to be used to qualify students from poverty than other students in terms of eligibility for gifted and talented services?

This study determined that evidence prescribed by Kentucky gifted and talented regulation for identification of general intellectual ability students, in some cases, showed a significant relationship between a student's socioeconomic status and identification. Of the possible identification evidence, six pieces showed a propensity to identify FRL-ineligible students at a higher rate than their lower socioeconomic status peers. Four standardized assessments used to identify students for general intellectual ability were identified as showing a significant relationship between the socioeconomic status of a student and subsequent identification. These four assessments were also identified as the most commonly used assessments of gifted and talented identified students in the area of general intellectual ability.

Based on the evidence review process, it was not surprising that inequitable identifications were found in the analysis of research question 1. Ultimately, if evidences used to identify gifted and talented students had a propensity to be biased in and of themselves, or the improper use of the tool creates bias, inequities will occur.

It was necessary to continue to train individuals on appropriate measures for the identification of students from low socioeconomic backgrounds. It will be important to share the results of this study with gifted coordinators in the state to shed light on inequitable identification practices and how the evidences, when used to establish gateways in the identification process, can exclude FRL-eligible students. It was also important to ensure that trainers of regional cadres were aware of this identification gap and seek methodologies to decrease inequity in identifications. If trainers were unaware of the presence of bias of identification practices, trainers may be sharing methods of identification that will further exacerbate the issue of inequitable identifications.

Research question 3 conclusions and recommendations

Do 'high-equity' school districts use the sources of evidence identified as related to identifying students from poverty at a higher rate than 'low-equity' districts?

A district policy review of high-equity districts, based on the Chi-square test of independence, compared to low-equity districts revealed policy differences that play a role in the creation of equity discrepancies in identification. Several items can be identified in low-equity districts as barriers to identification of FRL-eligible students.

In low-equity districts, policies require students to be screened with a group-administered assessment and score a ninth stanine before collecting any evidence for identification. This process creates a gateway that must be passed in order to move to additional identification

pieces. The most commonly used assessments for identification of Kentucky students in the area of general intellectual ability showed a statistical relationship between the child's socioeconomic status and his/her ultimate identification. By using assessments that show a propensity to identify paid students at a higher rate, inequity was created during the initial screening process.

In low-equity districts examined, policies require students to score in the ninth stanine on multiple gifted and talented assessments before being identified. In some districts, students were required to score within the 9th stanine on a number of assessments in order to progress to the collection of identification evidences. This process often included the use of multiple assessments that were identified as having a statistically significant relationship between the socioeconomic status and identification. By increasing the number of assessments that a student must score within the 9th stanine, coupled with the use of assessments that identify FRL students at a lower rate, the chance of a FRL student being identified was even lower.

Several low-equity districts had policies limiting recognition of multiple types of cognitive assessments for identification. Essentially, these districts prescribed a specific assessment or assessments that were the only assessments valid for identification. This practice limited the assessments in a way that decreased the possibility of using an assessment that was more appropriate for students that were socioeconomically disadvantaged.

Several low-equity districts had policies that did not include mechanisms for the use of individually administered intellectual assessments. In districts where equity was lower, a process was not identified that would allow for the use of individually administered intellectual ability tests. In regulation, a process was required that allows for the administration of an individual IQ assessment if a student scores low on a formal group measure, but other evidence suggests he/she may be gifted. In districts where this provision was absent, the screener may be the only

assessment considered, and since students were "screened out," additional evidence was not collected to suggest that a child would need an individualized assessment.

In low-equity districts, there was an absence of consideration of factors that impact a student's disadvantaged status. Low-equity districts did not identify a formalized process to weigh or consider factors that would impact a student's identification based on the disadvantaged status.

In more equitably identified districts, specific policy items can be identified as increasing equitable identifications based on socioeconomic status. In high-equity districts, collections of evidence from potentially gifted students were used for identification. In high-equity districts, each teacher was asked to submit evidences for consideration of gifted students. Additionally, parents were allowed to submit evidences for consideration. These processes allow for multiple individuals to nominate students for consideration prior to the administration of an assessment.

In high-equity districts, provisions were added to identify conditions that should be taken into account by the gifted and talented identification committee. Districts with high-equity in terms of identification, in most cases, had a provision or process for the collection of factors or environmental considerations (transiency, homelessness, socioeconomic barriers, language barriers, special education status, etc.) for review as a portion of evidence by the gifted and talented review committee.

In high-equity districts, multiple types of assessments to identify students for gifted and talented was accepted. In districts where equity was higher, a number of evidences were named for consideration, and provisions were explained regarding the requirements for the assessment to qualify for use. There were several options for assessment use at the districts with a higher level of equity.

High-equity districts identified parent nominations as an acceptable evidence. Parent nominations in high-equity districts were encouraged, based on a policy review. Additionally, peer and self-nominations were encouraged. The *n*-count for self and peer nominations does not suggest that this provision was frequently used; however, these options were available to students.

In high-equity districts, anecdotal data was used for consideration. In high-equity districts, multiple evidence pieces were used to create an anecdotal picture of the identification process. A collection of evidence was used to demonstrate a child's potential giftedness for consideration by the identification committee.

This study shed light on promising practices to increase identification of FRL-eligible gifted students. Based on the data analysis, the issue of identification being related to a student's socioeconomic status was widespread in Kentucky. Of the districts examined, 119 of 141 showed a relationship between a student's lunch status and his or her ability to be identified as gifted and talented and ultimately benefit from gifted and talented services.

This study also identified that districts elect, in most cases, to utilized normative group measures to identify students for gifted and talented services. The commoditization of student assessment increases the efficiency of assessing large groups of students in a timely manner. Although the identification process can be expedited through group-administered assessments, some students were overlooked for identification due to bias present in the assessments selected. The notion of one test being comprehensive enough to identify potentially gifted students was a contributing factor to low socioeconomic students being identified at a lesser rate than their FRL-ineligible status peers.

Conclusions

Ultimately, the best predictor of gifted and talented abilities would be an individual assessment that was administered by a school psychologist to each student. This method was identified as showing no relationship between the student's lunch status and his/her identification. This option was not feasible for most school districts in the state of Kentucky. While each district was given an allocation of gifted and talented funding, the funds were earmarked for the salary of gifted and talented teachers and services to gifted and talented students. In many cases, districts were using assessments that were normed many years ago; or were using the least expensive assessment on the market. The funds allocated to districts were also meager. The range of allocations falls between $9,000 and approximately $65,000. Districts were unable to pay a full-time salary on this allocation, thus district funds were used to offset the salary and benefits not covered by the gifted and talented allocation. This leaves no funding for appropriate assessments, training, or identification materials for gifted programs. Districts choosing to invest in gifted programming did so through the use of general fund dollars. General fund dollars were used for a number of projects within school districts; making the allocation of these funds very competitive among programming.

Due to shortages in gifted funding, districts select products to fit within the district budget. In order to make a bulk, normative, group-administered assessment a viable option to identify students for placement in gifted and talented programming, options exist to make the assessment more equitable. Kentucky Administrative Regulation 704 KAR 3:285 identifies practices that would enable districts to level the playing field for gifted identification. Districts could calculate the local norms to determine if the local population has a normative mean commensurate with national means. Districts could also calculate localized norms for specific

populations of students. In this study, the use of localized norms for students that were identified as being of lower socioeconomic status would enable the school district to examine potentially gifted students by allowing a larger number of these students to move through the initial gateway to progress to the identification evidences that did not show relationships between gifted and talented identification and socioeconomic status.

If localized norming was not an option based on the assessment vendor, or a lack of understanding of the calculation of localized norms, additional options exist. District personnel could screen students and use the seventh, eighth, and ninth stanine to guide evidence collection. This process would cast a wider net for identification and ultimately allow for evidence collection that would help the committee make an informed decision based on factors that may be identified by the teacher or parent that would qualify the student as disadvantaged.

Additionally, it was critical that teachers have training to understand the characteristics of bright students that were living in poverty. Teachers must have supports to be able to recognize the nuanced, and in some cases glaring, differences between poor gifted and talented students and their more affluent peers.

Finally, funding for gifted and talented education, must be prioritized. From assessments, to materials, to personnel, there was a need for research-based strategies to move gifted education forward. Without consistent support of educators trained in methodologies for identification, service, and support of gifted students, the population will continue to be under-represented.

Relationship of conclusions to other research

The conclusions identified in this Kentucky-specific research study affirm research studies included within the literature review. As identified in the 1972, Marland Report, this

study shows that Kentuckians have a propensity to identify FRL-ineligible students at a higher rate than their free or reduced lunch peers. While individuals did not explicitly state that economically disadvantaged students were less likely to become identified for gifted and talented ability in the area of general intellectual ability, the identifications within the state support that thinking.

Additionally, this research study supports the research completed by Dr. Jonathan Plucker in *Talent on the Sidelines* (2015). Plucker noted that the gap between Kentucky's affluent and non-affluent student body was increasing in both Grade 4 reading and mathematics as well as grade 8 reading and mathematics. This study identifies potential causations of this increasing gap. The lack of identification of gifts and talents among students can be attributed to a lack of understanding of the factors that were prevalent among precocious youth that were also of low-socioeconomic status. Due to a lack of acknowledgment of these strengths, students were not appropriately served, thus their talents were not developed. Students that fit the traditional profile of a gifted student were served, likely increasing their performance.

Terman's study offers the most significant linkage to this study. Terman found that in affluent schools, as high as twenty percent of the pupils enrolled in the school were tested and identified for gifted placement. In lower socioeconomic status schools, fewer students were nominated for potential assessment and identification. In Kentucky, teacher referrals were statistically related to the student's socioeconomic status and identification. Essentially, students that were identified by teachers were identified as FRL-ineligible at a rate higher than the student's peers. Terman also found that in some cases, students were accidentally screened, and identified without a teacher referral. Kentucky's study confirms that lack of accuracy in teacher identification of students for gifted and talented placement. Binet additionally confirmed that

teacher referrals were not without bias when identifying gifted students. Terman also concluded that assessments, in 1925, were not effective in identification of talented students. This study affirms that normative group assessments were not effective in identification of students without regard to socioeconomic status.

Finally, this study affirms Slocumb and Payne's work, in *Removing the Mask* (2000) that treating FRL-eligible students in the same manner as their more affluent peers results in under-identification of the entire subset of the population. Kentucky's regulation allows for the examination of groups of students using different methods of identification; however, provisions such as local norming were seldom used. Due to the rigidity of many district level policies, the state as a whole was under-represented in the area of gifted and talented education in the area of FRL-eligible students.

Limitations of the study

There were limitations to the study based on the nature of gifted and talented identification in the state of Kentucky. Each district selects the identification method and tools used to identify students for gifted and talented. In the evidence collection portion of the data set, evidences vary widely from district to district. For example, a district may have a disadvantaged checklist with ten items for personnel to select from while another district may identify twenty items to select from. The evidence pieces for each area may vary from district to district.

Additional limitations include the application of this study to the gifted population of other states. Because there was no federal law related to the identification and service of students, a nationwide approach would not be statistically sound due to variances in the identification methods used from state to state. Due to state level control of regulations, each

state's regulation, law, or rule varies in the ability to localize decisions, collect evidence, and the types of evidence that can be used for identification. Many states identify only in academic areas, thus the study may not meet the definition of gifted and talented in other states.

For the purpose of data reporting, districts were not required to report the version of the assessment being used. Multiple districts may be using the Otis-Lennon School Ability Test (OLSAT); however, the norming period or assessment versions may vary widely for each assessment listed.

Due to FERPA concerns, 32 school districts were not included in the study. These schools had small populations of students, having less than 10 students in one area. The lack of inclusion of these results for the overall state may have had a slight impact on the overall Chi-square test of independence.

Recommendation for further research

Further research was needed in a number of areas related to the study. The instrumentation and evaluation methods used for gifted and talented identification should be studied to create research-based materials that can be used for identification. Additionally, the alignment of assessments to the student's areas of strength should be studied to determine what services were provided and the effectiveness of the service.

The consideration and feasibility of the implementation of a model such as the "Young Scholars Model" would have aided in determining if the model would increase equitable identifications. Such a model did not exist in school districts in Kentucky at the time of the study. The creation of such a model aligned to Kentucky regulatory language would benefit districts that choose to use such a program to create access for students that have not been identified due to their economic status. Without such a program, children that enter into school

with achievement in the upper quartile begin to lose ground and were unable to regain high achievement levels (Roberts, J.L. & Jolly, J. L., 2012). Without supports needed to help these students achieve at high-levels, the nation loses its most valuable resource; talented children (Plucker et. al. 2010).

Research related to Kentucky's gifted population as a whole was needed. This study examined a small subset of the population. The study focused only on the area of general intellectual ability. There were eleven additional areas that should be studied to determine if gifted and talented students living in poverty were under-represented in all identification areas. These areas include: (a) leadership, (b) creativity, (c) art, (d) music, (d) dance, (e) drama, (f) mathematics, (g) language arts, (h) science, and (i) social studies.

Research should be conducted to determine how poor students that receive gifted and talented services perform along the educational trajectory as compared to their peers that were not identified. This research would help strengthen the argument for appropriate and equitable identifications of gifted and talented students.

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IRB Approval

MURRAY STATE UNIVERSITY

Institutional Review Board

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TO: Robert Lyons
College of Education and Human Services

FROM: Institutional Review Board
Jonathan Baskin, IRB Coordinator

DATE: November 28, 2016

RE: IRB # ODF 17-07

Determination: Research does not use Human Subjects as defined in 45 CFR 46.102(f) (1) & (2).

The MSU IRB has reviewed your student's application entitled, *Equitable Identification of Gifted and Talented Students*. Based on the information supplied on this application, it has been determined that your student's project does not involve activities and/or subjects that would require IRB review and oversight. Your IRB application will be kept on file in the IRB office for a period of 3 years.

Please note that there may be other Federal, State, or local laws and/or regulations that may apply to your project and any changes to the subjects, intent, or methodology of your project could change this determination. You are responsible for informing the IRB of any such changes so that an updated determination can be made. If you have any questions or require guidance, please contact the IRB Coordinator for assistance.

Thank you for providing information concerning your student's project.

Ed.D. Student Bio

Josie Leann Pickerill was born and raised in Hopkinsville, Kentucky by parents Kenneth and Donna Gray. She attended public schools from grades K-12. Upon graduation from Hopkinsville High School, Leann attended Murray State University where she earned a bachelor's degree in elementary education and a Master of Arts in Educational Administration at Murray State University. She completed additional coursework at Western Kentucky University to earn her gifted and talented teaching endorsement. Leann began her doctoral program in the fall of 2014 in the inaugural cohort of the Murray State University Ed.D. program.

Leann's career has been focused in public education. She taught first, fourth, and fifth grade at Holiday Elementary School. Additionally, she served as an enrichment specialist, gifted coordinator, and instructional supervisor in Christian County Public Schools. Leann currently works at the Kentucky Department of Education in Frankfort, Kentucky. She has served as the statewide director of gifted and talented education. Currently, she serves as manager of academic standards for the state of Kentucky. Leann's experience of being statewide director of gifted education as well as a classroom teacher and district level supervisor of gifted education, inspired Leann's interest in gifted education. Leann also has an interest in opportunity, access, and equity for students.

Leann and her husband, Shane, married in 2002. Shane is an elementary principal. Leann's daughter, Allison, a middle school student, enjoys singing, playing sports, cooking, and crafting. Leann's son, Logan, is in 5th grade, and enjoys reading and sports. Both Allison and Logan participate in gifted and talented programming at their schools. Leann and her family currently reside in Georgetown, Kentucky.

Appendices

Table 24

Description of identification evidences

Evidences for gifted and talented identification	
Evidence	Description
Teacher referral	Teacher refers students for gifted and talented consideration. This evidence may include teacher observations or anecdotal data.
Checklist data	Characteristics of gifted students were presented. Those characteristics exhibited by the student were checked.
Portfolio evidence	Evidence pieces collected and presented in a format for review for identification.
Evidence of advanced reasoning	Evidence presented in anecdotal form or in the form of advanced assignments and student work samples.
Documented awards	Awards applicable to the area of identification were compiled and presented as evidence for consideration.
Anecdotal data	Qualitative data collected from school personnel or parents.
Disadvantaged checklist	Checklist with items identified for consideration. Items may include: economic status, transiency, disability, custodial information. May also include comments area for consideration by committee.
Continuous progress data	Quantitative data set that may include: grades, assessment scores, daily grades, and work samples.
Informal assessment	Qualitative data presented in typically narrative form.
Self-Nomination	Documentation the student completes to nominate him/herself for consideration.
Gifted and talented committee referral	Typically meeting minutes from the review committee. Often includes a recommendation or denial letter. Typically includes individuals at the school or district level to determine identification.
9^{th} stanine test- all tests	Evidence of a student scoring within the 9^{th} stanine of a normative assessment.

Table 25

Description of identification assessments

Description of standardized assessments for gifted and talented identification	
Identification Assessment	Description
9th stanine test- Naglieri	Evidence of a student scoring within the 9th stanine on the Naglieri nonverbal assessment.
9th stanine test- Raven Progressive Matrices	Evidence of a student scoring within the 9th stanine on the Raven Progressive matrices.
9th stanine test- WISC	Evidence of a student scoring within the 9th stanine on the WISC.
9th stanine test- (CTBS)	Evidence of a student scoring within the 9th stanine on the CTBS.
9th stanine test- other	Evidence of a student scoring within the 9th stanine on an assessment not identified within the Kentucky student information system.
9th stanine test- CogAT	Evidence of a student scoring within the 9th stanine on the CogAT.
9th stanine test- Kaufman Int. Test	Evidence of a student scoring within the 9th stanine on the Kaufman Intelligence Test or the Kaufman Brief Intelligence Test.
9th stanine test- Stanford Binet	Evidence of a student scoring within the 9th stanine on the Stanford Binet.
9th stanine test- Woodcock Johnson	Evidence of a student scoring within the 9th stanine on the Woodcock Johnson.
9th stanine test- OLSAT	Evidence of a student scoring within the 9th stanine on the Otis-Lennon School Ability Test (OLSAT).

Table 26

Descriptive statistics for the state as a whole and districts identified for policy review

Population	Classification	Mean Percentage of students identified as FRL-eligible	Mean percentage of students identified for GT-GIA participation	Mean percentage of students identified as GT-GIA who were FRL-eligible
State (overall)	State	58.22%	5%	30.43%
Low-equity districts	Urban-2 Suburban-2 Rural- 2	61.67%	9%	31.42%
High-equity districts	Urban-2 Suburban-1 Rural-2	45.64%	4%	35.82%

Table 27

Identification evidences descriptive statistics

GT Indicator	FRL-eligible *n*	FRL-ineligible *n*	FRL-eligible and GT identified non-use *n*	FRL-ineligible *n*	Chi-square test of independence	*p* value
Disadvantaged Checklist	414	755	9534	21979	14.178	0.000
Informal Assessment	1706	2814	8242	19920	132.185	0.000
Gifted and Talented Committee Referral	1812	3774	8136	18960	12.721	0.000
Teacher Referral	5907	14132	4041	8602	22.606	0.000
Checklist Data	4463	11525	5485	11209	94.18	0.000
9th Stanine Test	9651	22716	297	18	612.354	0.000
9th Stanine Test Cognitive Abilities Test	975	3113	8676	19603	79.612	0.000
9th Stanine Test Naglieri	494	768	9157	21948	54.588	0.000
9th Stanine Test Otis-Lennon School Ability Test	1651	5328	8000	17388	161.373	0.000
9th Stanine Test Raven Progressive Matrices	2649	3980	7002	18736	409.865	0.000
Evidence of Advanced Reasoning	461	1234	9487	21500	8.869	0.003
Other Assessment Data	3118	7481	6830	15253	7.721	0.005
Continuous Progress Data	5145	11386	4803	11348	7.404	0.007
Portfolio Evidence	414	1100	9534	21634	7.177	0.007
9th Stanine Test Kaufman Int. Test	93	288	9558	22428	5.388	0.020
9th Stanine Test: Test of Cognitive Skills (CTBS)	624	1624	9027	21092	4.896	0.027
9th Stanine Test Other	2980	7293	6671	15423	4.711	0.030
Parent Referral	1748	4203	8200	18531	3.902	0.048
Anecdotal Data	1415	3412	8533	19322	3.382	0.066
Self-Nomination	37	117	9911	22617	3.005	0.083
9th Stanine Test WISC	31	102	9620	22614	2.704	0.100
Documented Awards	121	234	9827	22500	2.253	0.133
9th Stanine Test Stanford Binet	21	54	9630	22662	0.119	0.731
9th Stanine Test Woodcock Johnson	15	36	9636	22680	0.004	0.949

Figure 1- Graphical Representation of Study