

Mathematics Placement Decisions for High School Students with High Incidence
Disabilities: A Collective Case Study

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Abstract

The purpose of this multiple case study is to describe the experiences of case managers making mathematics placement decisions of high school students with high incidence disabilities. There is much information about what should be happening when making mathematics placement decisions of high school students with high incidence disabilities, but there is little research to describe what is happening. Participants include: three parents of high school students with a high incidence disability, three high school students with a high incidence disability, three case managers of a high school student with a high incidence disability, three high school mathematics teachers and three high school administrators from three different high schools in three different geographic areas: rural, suburban and urban. Four major findings emerged:

1. The placement process is a team decision.
2. Course options, the master schedule and graduation requirements are influential in the placement process.
3. A range of special education services are available, but not all needs are being met.
4. Data provides a jumping off point.

Three recommendations for further research emerged:

1. Based on the limitations of the current study in regards to generalizability, a survey of a large sample of case managers should be conducted across the state of Minnesota and/or the country, to evaluate the degree to which the same or similar findings may be

uncovered regarding the placement process and the factors surrounding placement decisions.

2. Because perceived lack of meaningful participation among parents was common among all sites, a mixed methods study could be utilized to determine how meaningful participation could be improved.
3. During this study, student needs and the perception that student needs were not being met was a common theme across cases and participants. A similar follow-up study should be undertaken to determine a definition of “needs” and how best to meet those needs.

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CHAPTER I

Introduction

State and federal guidelines have been established to support special education Case Managers and Individual Education Plan (IEP) teams in making decisions about where educational instruction should occur for students with disabilities. Guidelines from the Individuals with Disabilities Education Act (IDEA) (2004) indicate placement decisions regarding where instruction should occur are to be made on an individual basis. That decision should also be based upon input from a team of individuals, including the student, Parent or guardian, general education teacher, representative of the school district and a Case Manager. Finally, instruction should occur in the least restrictive environment.

Procedures exist that should dictate how placement decisions are made, though little research exists about the process that Case Managers utilize in making mathematics placement decisions for high school students with high incidence disabilities. It would be beneficial to develop an understanding of what the practice is for Case Managers when making mathematics placement decisions. Understanding the placement process may help determine best practices that support the current population of special education Case Managers in finding a balance between meeting student needs, and meeting state and federal accountability guidelines related to mathematics standards.

Background and Context

The Individuals with Disabilities Education Act (IDEA) mandates all students with a disability have an Individual Education Plan (IEP) (Individuals

with Disabilities Education Act, 2004). Historically, the IEP has driven instruction and this instruction was based upon individual students' need. Current education policy, specifically the No Child Left Behind Act (NCLB) (2001), supports a standards based education in all core content areas, including mathematics (Hess & Petrelli, 2009; No Child Left Behind Act, 2001). In Minnesota, all students are held accountable to the same mathematics content standards, including students with disabilities. Student success in mathematics at the high school level is determined by the results of one large group administered high stakes test: the Minnesota Comprehensive Assessment-II (MCA-II). But, the most appropriate way to prepare students with high incidence disabilities to adequately meet mathematics content standards set forth by the state of Minnesota, and the challenges of the MCA-II, is unclear. This ambiguity leaves IEP team members, and more specifically Case Managers, in a dilemma: meeting the individual needs of the students as outlined in the IEP and meeting state standards and state and federal accountability measures through standardized testing. They are left with the challenge of determining the most appropriate mathematical environment for students with high incidence disabilities.

Legislation

IDEA requires students with disabilities be educated in the least restrictive environment (LRE). To the greatest extent possible, students with disabilities should be placed in general classrooms with appropriate supports and services, to be educated with students who are not disabled. But, removal may occur when

students with disabilities fail to make adequate progress within the regular classroom with the use of supplementary aids and services (IDEA, [section] 1412(5)(B)). It is up to the team, including a special education Case Manager licensed in the area of disability, Parents or guardians, general education teachers and the student, to determine the least restrictive environment for all content areas, including mathematics. But, a 2002 study by Wallace, Batholomay and Hong indicated a third of Administrators did not require regular education teachers to attend IEP meetings, even though attendance is required by law. The lack of attendance by content area experts' increases the burden to the Case Manager in determining appropriate placement.

Mathematics instruction for high school students with disabilities can and does occur in a variety of settings. Some students with IEP's receive mathematics instruction in general classrooms. Other students with IEP's receive mathematics instruction in resource rooms. The literature is inconsistent regarding the effectiveness of mathematics instruction either, in inclusive settings or in resource rooms (Fore et al., 2008; Fuchs & Fuchs, 1994; Lee, Whemeyer, Soukup & Palmer, 2010; Maccini & Gagnon, 2006; McLesky & Waldron, 1998; Wasburn-Moses, 2006; Winzer, 2000). It is up to the Case Manager and IEP team to consider and determine the most appropriate setting for instruction when looking at mathematics placement options for students with high incidence disabilities. But, there is no-clear cut answer regarding the most effective environment for mathematics instruction. It is up to the IEP team to make the decision regarding instructional environment.

State and federal guidelines dictate how placement decisions should be made regarding programming and instruction for students with disabilities, including providing a Free and Appropriate Public Education (FAPE) in the Least Restrictive Environment (LRE). Federal policy initiatives, including No Child Left Behind (NCLB), the state of Minnesota academic standards in the area of mathematics, and the Common Core Initiative drive the mathematics curriculum. There is agreement that students with high incidence disabilities should have access to a challenging curriculum with quality instructors. What is less clear is the environment best suited for providing the curriculum and instruction, and the process involved in making placement decisions.

There are implications associated with mathematics placement for students with high incidence disabilities. Placement can have an impact on access to a rigorous curriculum with content area experts (Fuchs & Fuchs, 1994; Gagnon & Maccini, 2007; Maccini & Gagnon, 2006; Wasburn-Moses, 2006; Winzer, 2000). Placement may be perceived as an equity issue with long term effects, including entry to higher-level mathematics and post-secondary education and training. Access to post-secondary education and training has an economic impact over lifetime income (Boaler, 2008; Foegen, 2008; Smith & Geller, 2004). Self esteem and social issues may arise, depending upon placement and the ability to meet individual student needs is also a concern (Maccini & Gagnon, 2006; Washburn-Moses, 2006). There is a lack of research addressing the realities that exist regarding the issues that influence mathematics placement decisions of high school students with high incidence

disabilities for special education Case Managers at the high school level. The challenge is the lack of knowledge surrounding how and why placement decisions are made, despite the knowledge surrounding curriculum and pedagogy.

Pedagogy

A broad body of research exists regarding mathematics pedagogy for students with high incidence disabilities (Baker, Gersten & Lee, 2002; Foegen, 2008; Gagnon & Maccini, 2001 and 2007; Little, 2009; Wadlington & Wadlington, 2008). Many of the suggestions regarding mathematics instruction for students with disabilities focus on pedagogy to support unique learners and are a shift from the traditional mathematics classroom of lecture and independent practice toward practices more aligned with the Learning Principle outlined by the National Council of Teachers of Mathematics (NCTM) (2000). The Principle states “Students must learn mathematics with understanding, actively building new knowledge from experience and previous knowledge” (NCTM, 2000, p. 2, Executive Summary). It would seem, then, these shifts in methodology and pedagogy could and should be implemented in general classroom as well as resource rooms to support students with high incidence disabilities.

Foegen (2008), Gagnon & Maccini (2001), and Little (2009) suggest specific methodology, including: direct instruction, regular progress monitoring, the use of peer tutors or cooperative groups, and graduated instruction, moving from concrete to abstract. Gagnon and Maccini (2001; 2007) believe strategy instruction and metacognitive strategies in problem solving are also effective

tools for teaching mathematics to struggling students. The research also suggests specifically teaching self-monitoring skills to struggling students and integrating writing into the mathematics curriculum. Finally, Baker, Gersten & Lee (2002), Foegen (2008) Gagnon & Maccini, (2001), Little (2009) and Wadlington & Wadlington (2008) recommend incorporating multiple types of assessments to gauge student learning, including portfolio, formative, and summative assessments.

The implementation of strategy instruction, the specific teaching of self-monitoring skills, the addition of writing, and the use of multiple types of assessments into the current mathematics curriculum, as well as the changes in pedagogy, should make the content more accessible to all students. Strategy instruction within the mathematics curriculum will support the metacognitive skills students with disabilities often lack (Gagnon & Maccini, 2001; Gagnon & Maccini, 2007). The use of graphic organizers and mnemonics within the strategy instruction, combined with the pedagogical approach of modeling, providing guided practice and immediate feedback all support generalization, which can lead to success in mathematics. The problem is, regardless of where mathematics instruction occurs, students with high incidence disabilities should have access to a rigorous curriculum, aligned with the curriculum standards set forth by state and federal guidelines. But, there are concerns with the quality of instruction and access to the curriculum in both resource and general class placements. Understanding the placement process may help determine best practices that support the current population of special education Case Managers

in finding a balance between meeting student needs, and meeting state and federal accountability guidelines related to mathematics standards.

Statement of Purpose, Research Questions and Research Approach

The purpose of this research study was to describe the experiences of Case Managers making mathematics placement decisions of high school students with high incidence disabilities.

1. What is the process of special education Case Managers in making mathematics placement decisions for high school students with high incidence disabilities?

2. What influences the decision making process of special education Case Managers in regards to making mathematics placement decisions for high school students with high incidence disabilities?

3. How does the placement process differ in urban, rural and suburban schools in the state of Minnesota?

Upon approval of the Institutional Review Board (IRB) the qualitative research approach consisted of a multiple case study. The cases included 15 participants in three separate geographic locations in the state of Minnesota. Semi-structured interviews and Critical Incident Instruments were the primary sources of data collection. A multiple case study best lends itself to examining the research questions related to the discovery of the influences regarding mathematics placement decisions for special education Case Managers of high school students with high incidence disabilities in the state of Minnesota. A multiple-

case design strives toward a “holistic understanding” of the phenomenon being studied (Feagin, Orum & Solberg, in Tellis, 1997, p. 5).

Assumptions

Based on the researchers’ experience and back ground as a special education Case Manager of high school students with a high incidence disability, four primary assumptions were made regarding this study. First, the state academic standards and state accountability testing in the area of mathematics are driving mathematics placement decisions of high school students with high incidence disabilities. Second, course options and availability of courses will impact where students receive mathematics instruction. Third, student needs are not the primary factor in making placement decisions. Fourth, Case Managers play the most significant role in the placement process, regardless of federal legislation (IDEA) indicating the placement process is a team decision. The researcher made known the assumptions as they related to the research. The researcher also reflected upon the assumptions as they were listed in Chapter 1 in an effort to suspend them and put them aside. The assumptions were revisited during the analysis phase.

Rational and Significance

The rational for this study came from the lack of research surrounding the realities that exist regarding mathematics placement decisions of high school students with high incidence disabilities for special education Case Managers. The rational for the study also stemmed from the researcher’s wish to develop a description of the placement process. A description of the placement process

may assist the current population of special education Case Managers in determining best practice to find a balance between meeting student need and meeting state and federal accountability guidelines, as well as mathematics standards. Little is known about what influences the decision making process of special education Case Managers in regards to making mathematics placement decisions for high school students with high incidence disabilities. The multiple case study identified themes among Case Managers and helped to develop an understanding of what is happening in Minnesota schools. The process was viewed through multiple perspectives. The potential implications for further research and policy were many, including a benefit to educational preparation programs. The multiple case also provided insight into what happens during the placement process.

Operational Definitions of Key Terms

Case Manager-Plans and facilitates IEP meetings, advocates for students with IEP's, coordinates special education services with regular education teachers and other service providers, ensures implementation of special education services, writes IEP's and provides regular progress updates to families and students.

Common Core Initiative- A set of college and career readiness standards for grades K-12 consistent among states. The Common Core State Standards Initiative was initiated, in part, by the National Governors Association (NGA) in an effort to deliver consistent, rigorous content standards across the country (Common Core Standards Initiative, 2011).

Free Appropriate Public Education (FAPE)-Children with disabilities are provided an education at no cost to the student or their family. The education meets the individual students' need at the expense of the public for children birth to age 21 (34 CFR §300.17).

High Incidence Disabilities-A student eligible for special education services based under criteria established by the state of Minnesota for Specific Learning Disability (SLD), Other Health Disabilities (OHD), Emotional or Behavior Disorder (EBD), and mild Developmental Cognitive Disorders (DCD) (Sabornie, Evans, & Cullinan, 2006).

High school student with a high incidence disability- A public school student in grades 9-12 who has been determined eligible for special education services based on criteria established by the state of Minnesota.

Individuals with Disabilities Education Act (IDEA) (2004)-A federal education policy, originally the Education for All Handicapped Children Act, instituted as a measure to ensure equal access to education for children with disabilities.

Least Restrictive Environment (LRE)-Students with disabilities are educated with their non-disabled peers to the greatest extent possible. The student can be removed from the general education setting if the nature and severity of the disability impacts the satisfactory academic progress of the student (34 CFR §300.114(a)(2)(ii)).

No Child Left Behind (2001) (NCLB)-The 2001 reauthorization of the Elementary and Secondary Education Act (ESEA). The most notable feature of

NCLB is the focus on accountability for the academic success of all students (No Child Left Behind, 2001).

Strategy Instruction-Strategy instruction focuses on teaching students how to learn and apply previously learned information in a variety of settings. Students are taught a sequence of cognitive steps related to skills acquisition.

Components of strategy instruction generally include modeling by the teacher, both of the skill and of the metacognitive process, the opportunity for students to engage in guided and independent practice and receive immediate feedback on their performance (Swanson, 2001).

CHAPTER 2

Review of the Literature

State and federal guidelines have been established to support special education Case Managers and Individual Education Plan (IEP) teams in making decisions about where educational instruction should occur for students with high incidence disabilities. But, there is limited research regarding the realities Case Managers face when making mathematics placement decisions for high school students with high incidence disabilities that address both students' academic mathematics needs and state curricular standards. In order to better understand the underlying influences of placement decisions for Case Managers of students with high incidence disabilities, a review of relevant literature included: a brief history of the development of academic standards, federal policy initiatives, including the No Child Left Behind Act (NCLB) (2001) and the Individuals with Disabilities Education Act (IDEA) (2004), that play a role in making educational placement decisions. The review also looked at curriculum as it relates to accountability, process and content standards, and equal access. The review also provided research specific to mathematics pedagogy and teaching and learning mathematics for students with and without disabilities. Finally, concerns regarding mathematics, disabilities, and placement issues were addressed.

Background, Policy and Politics

Background.

Students with learning disabilities generally struggle with information processing and problem solving. Those with reading and language difficulties

may also experience difficulty in mathematics (Little, 2009; Wadlington & Wadlington, 2008). “Math difficulties emerge in elementary school grades and progress through secondary school, typically performing over two grade levels behind their peers without disabilities” (Little, 2009, p. 3). Students with high incidence disabilities may also struggle with motivation and self-esteem issues, as well memory and computational difficulties (Gagnon & Maccini, 2001; Grolnick & Ryan, 1990; Little, 2009; Sideridis, 2003; Wadlington & Wadlington, 2008). “More than half of high school students with disabilities demonstrated mathematics computation and problem solving levels below the 25th percentile on an individually administered achievement test” (Foegen, 2008, p. 65). Federal policy, specifically No Child Left Behind (NCLB) (2001), has stipulated all students will reach proficiency in the area of mathematics by 2014. Many educators question the reasonableness of this mandate, given the already existing achievement gap and the data that supports documented disabilities that affect mathematics performance and ability. Special education teachers, families and core content teachers are wrestling with placement issues, making the determination about where a student should receive instruction and why “where” matters.

Federal education policies, including No Child Left Behind and the Individuals with Disabilities Education Act should be the guidelines that drive mathematics placement and instruction for high school students with high incidence disabilities. The Minnesota Academic Standards in mathematics, and recommendations of professional organizations including the National Council of

Teachers of Mathematics (NCTM) and the Common Core Initiative, are driving mathematics curriculum. The literature provides a significant amount of research regarding pedagogy for students with and without high incidence disabilities, as well the effects of tracking and inclusion and pull out classes (Baker, Gersten & Lee, 2002; Bruner, 1971; Cramer, 2003; Dienes & Golding, 1971; Foegen, 2008; Gagnon & Maccini, 2001 and 2007; Lesh & Doerr, 2003; Lesh & Zawojewski, 2007; Little, 2009; Piaget, 1970; Wadlington & Wadlington, 2008). The lack of research surrounding how and why placement decisions are made, despite the body of knowledge surrounding curriculum and pedagogy situates the problem within issues related to equity and access to curriculum, teacher attitudes, and the achievement gap. These issues may play a role regarding the appropriateness of placement.

The history and politics of a standards based education and accountability system can be traced back to A Great Society, social efficiency and Sputnik. In 1957, Russia successfully sent the first satellite into orbit (Pinar, Reynolds, Slattery, & Taubman, 2008). Sputnik created a flurry of activity, and an education crisis. In 1958, the National Defense Act set aside federal money for curriculum development in the areas of mathematics and science. The passage of the Elementary and Secondary Education Act (ESEA) in 1965 also set the stage for federal funding of public education in an effort to provide an equitable education to students that were economically disadvantaged (Hess & Petrelli, 2009).

During the 1960's, teaching and learning began to shift from a traditional, behaviorist approach in which the teacher led instruction, to a reform approach,

which held philosophical underpinnings of constructivism. The National Science Foundation (NSF) provided funding for the development of new mathematics and science curriculum. The discovery approach was encouraged and students were provided the opportunity to create their own learning. The teacher's role changed from the giver of knowledge to that of facilitator, providing opportunities for learning to occur (Woodward, 2004).

Along with the federal dollars, a system of accountability was also introduced as a way to hold schools and districts accountable for the education of all students. The country also recognized the educational rights of all children, including those with disabilities, through the introduction of Public Law 94-142 (PL 94-142), more commonly known as the Education for all Handicapped Children Act. The 1980's were a time of educational unrest. The release of "A Nation at Risk" in 1983 proposed the notion that American schools were not rigorous enough, and called for higher, more stringent standards (Pinar et al., 2008). The nation was moving toward an educational reform of outcomes based standards and accountability at the state and federal level where education policy currently stands today with No Child Left Behind.

Global competition also played a part in the increased pressure for higher academic standards (Woodward, 2004). In an article published in the Washington Examiner (2010), President Obama stated the United States "continues to lag behind other nations in critical areas, including high school math and science skills...states will be asked to adopt new standards to better prepare the young for college-level math and science" (na). According to the Trends in

International Mathematics and Science (TIMMS) (2007), eighth graders from the United States lagged behind 8 other countries, with an average scale score of 508, which is higher than the TIMMS scale average of 500, but significantly lower than that of the top performing country of Chinese Taipei, with an average scale score of 598. The results lent further fuel to the flame calling for higher academic standards in mathematics for all students

No child left behind.

Government involvement in education policy began to increase in 1983 after the publication of *A Nation at Risk*, which provided a scathing review of America's public schools. The report went so far as to label the United States educational system as failing (National Commission on Excellence in Education). In 1989, governors from around the country met to discuss the state of American education. The result of the conference was America 2000, which included a provision calling for "American students to lead the world in math and science" (Hess & Petrelli, 2009, p. 12). In 1994, Goals 2000 reinforced the country's focus on increasing standards and developing accountability tests, specifically in the areas of reading and mathematics.

The re-authorization of the Elementary and Secondary Education Act (ESEA) in 1994 set a specific timeline for the implementation of the standards and assessments-the year 2000 (Hess & Petrelli, 2009; Pinar et al., 2008). Finally, in the 2001, George W. Bush signed into law the reauthorization of ESEA that became known as the No Child Left Behind Act (NCLB). NCLB called for accountability testing at multiple grade levels, and disaggregated achievement

data on minority students and students with disabilities. The act also stipulated all students should be proficient in reading, writing and mathematics by the year 2014. All students, including those with disabilities, would be expected to make adequate yearly progress (AYP) toward the goal of 100% proficiency.

NCLB (2001) also included a provision for the development of challenging academic standards in every state, specifying what children should know at each grade level. There was one caveat in that each individual state was left to determine individual curricular standards. NCLB (2001) did not provide direction regarding what the standards should comprise, though did make clear all students would be a part of a rigorous curriculum. Proficiency would be determined by student performance on high stakes tests aligned with individual state-developed standards.

NCLB also included language that stated all teachers in core content area, including mathematics, should be highly qualified. Highly qualified was defined as licensed in the area assigned to teach (2001). The purpose of this provision was to ensure all students had access to teachers with the depth of knowledge necessary to support student learning, as outlined by the National Council of Teachers of Mathematics (NCTM). NCLB's primary goal was reminiscent of PL 94-142, currently IDEA. The main premise of the law was to provide all students access to a quality education with a rigorous curriculum and highly qualified teachers, including those with disabilities.

Individuals with disabilities education act.

The individuals with Disabilities Education Act (IDEA), formerly known as the Education for All Handicapped Children Act (PL-94-142), was enacted in 1975 and re-authorized in 1994, 1997, and again in 2004. IDEA was initially instituted as a measure to ensure equal access to education for children with disabilities. IDEA included a provision that stated students with disabilities must have an Individual Education Plan (IEP) based on individual student needs. The IEP was developed by an interdisciplinary team, including the student, when age appropriate, an educator licensed in the area of disability, the parent/guardian, a regular education teacher familiar with curriculum and core content and a representative of the school district. But, according to Menlove, Hudson and Suter (2001), in a study of over 1000 general education teachers, findings indicated regular education teachers didn't always attend IEP meetings, and when they did attend, they did not feel connected to the team or the process. The mainstream teacher's lack of connection was often attributed to lack of training and being unsure of their role in the IEP and placement process. In a study by Martin, Marshall, and Sale (2004) results indicated general education teachers reported they made significantly less contributions regarding decision making than other team members. And, special education teachers participated significantly more than other participants, including administrators, parents and general education teachers. Garriott, Wandry, and Snyder's (2000) study revealed parents attend IEP meetings, but assume a passive role instead of participating in the development of educational plans. IDEA stipulated student

needs would be determined by individual progress and performance; and placement decisions would be made by the team of experts.

Federal and state law required a review of programming goals no less than once per year to determine if the student was making adequate progress. IDEA included language that stated students with disabilities would receive a free and appropriate public education (FAPE) in which specialized services would be provided at no cost and the IEP and other due process concerns were subject to monitoring and compliance by local, state and federal entities (20 U.S.C. 1401 (8)). IDEA also demanded students with disabilities would have access to high quality teachers and a rigorous curriculum in the least restrictive environment (LRE).

The LRE statute indicated:

to the maximum extent appropriate, children with disabilities, including children in public or private institutions... [be] educated with children who are not disabled, and the special classes, separate schooling, or other removal of children with disabilities from the regular educational environment [occur] only when the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily. (20 U.S.C. § 1412(5)(B))

Districts are required to make available a continuum of services to students with disabilities. According to the LRE provision, the continuum of service would include a full range of options, from the regular class (less restrictive) to special classes, special schools, homebound instruction, hospitals or facilities (more

restrictive). The range in services included in the spectrum could include full-time instruction in a regular class with appropriate supports and services, accommodations and modifications or additional adult support. Services could also include “pull-out” or “resource” instruction outside of the regular classroom. The LRE mandate included language that specifically stated instruction could and should occur, to the greatest extent possible, in a regular classroom with appropriate supports and services. But, if the education provided in the regular classroom was not appropriate, then special classes could and should be considered.

The law was very clear in that placement would be a team decision made on a case by case basis. The law did not state all students must receive instruction in a regular classroom, 100% of the time, though should be one of many options considered and available. LRE would be a team decision and should be based upon student need. The LRE provision provided a guideline to families and professionals regarding placement.

Case law was also used to help make clear the meaning of the LRE mandate, and as a resource to support schools and districts determine if they were meeting the FAPE and LRE requirements of IDEA. Most notably, a two prong test evolved from case law, *Daniel R.R. vs. State Board of Education* (1989), which has been utilized in the determining compliance. The first prong determined whether education within the regular classroom could be achieved when students were provided appropriate supports and services including classroom modifications, accommodations and supplementary aids and services

(Yell, 1995). The LRE provision of IDEA also mandated students with disabilities should receive instruction with their non-disabled peers to the maximum extent possible and receive educational benefit (300.17). The second prong of the Daniel R. R. test supported the continuum of placements indicated in LRE and provided students with disabilities the maximum exposure to non-disabled peers.

According to the U.S. Department of Education 30th Annual Report to Congress (2011), in 2008, approximately 54% of school age students with disabilities nationwide spent more than 80% of their school day in a regular classroom. The trend shows students are spending more time in the regular classrooms than they had in the past. Data from the US Department of Education 26th Annual Report to Congress (2004) show that in 1993, 43.4% of students with a disability spent more than 80% of their day in regular classes. Minnesota's results vary from that of the national statistics. Participation in regular classrooms trended downward, with 65% of students spending 80% or more of their time in regular classes in 1998, prior to the implementation of NCLB, to 62% in 2002 (US Department of Education, 26th Annual Report to Congress, 2004) and 60% in 2005 (29th Annual Report to Congress, 2009).

The LRE provision made clear special education teams should be making mathematics placement decisions on an individual basis. LRE also clarified the idea that it was acceptable for students with mathematics difficulties to receive instruction in a regular classroom or outside of the regular classroom based on student need and ability to make adequate academic progress.

National council on disability.

The National Council on Disability (NCD), as part of the special education reform movement, suggested that education for students with disabilities should focus more on the quality and outcomes of education, and not simply access to education. Their position is such that special education has been primarily concerned with meeting procedural standards via monitoring and compliance of paperwork and less about students making adequate academic progress. NCD (1989) also posits the achievement gap between students receiving special education services and their non-disabled peers could have long-term economic effects, including unemployment or underemployment. The NCD (1989) advocates for a more inclusive educational environment, but is clear in that schools must provide the supports and services necessary for students with disabilities.

During the early 1990's parent organizations and professional organizations, including the Council for Learning Disabilities (1993), Division for Learning Disabilities (1993), Learning Disabilities Association (1993) and the National Joint Committee on Learning Disabilities (1993) questioned the effectiveness and appropriateness of inclusive programs. Most specifically, the groups were concerned about inclusion programs ability to meet individual student needs and to provide appropriate supports and services.

Connections between NCLB and IDEA.

Both the No Child Left Behind Act (NCLB) and the Individuals with Disabilities Education Act (IDEA) support a high quality education for all students, including those with disabilities. The main premise of NCLB has its roots in the

Education for all Handicapped Children Act (PL 94-142) with the goal of improving education for all students. NCLB was drafted with the hopes of closing the achievement gap. NCLB and IDEA promote rigorous standards, access to grade level curriculum, and highly qualified teachers and instruction for all students.

The ideals set forth in NCLB and IDEA is not mutually exclusive to one policy initiative or the other. It would seem, then, that placement for mathematics instruction for high school students with high incidence disabilities should be a non-issue from a policy perspective. The instructional goals should be the same for both policy initiatives: measurable academic progress for all students.

Curriculum

Federal policy initiatives are guiding what should be happening regarding mathematics placement decisions for students with high incidence disabilities. There are curriculum mandates and recommendations from professional organizations guiding what students should know and be able to do, mathematically, at all grade levels. Historically, special education classrooms have been focused on remediation and specific skill practice. But, accountability at the state and federal level, and recommendations from professional organizations, are compelling both special and general education teachers to take a closer look at what students should know and be able to do.

Accountability.

Performance on Minnesota's high stakes test, the Minnesota Comprehensive Assessment-second edition (MCA-II) is tied to accountability at

the local, state and federal level for all Minnesota public high school students. Students must pass the MCA-II in order to graduate. Schools and districts must make adequate yearly progress (AYP) toward 100% proficiency as mandated in NCLB (2001). And, AYP is determined, in part, by students' scores on the MCA-II.

Part of AYP is determined by criteria other than test scores. Ninety five percent of eligible students must participate in testing, including 95% of students with a documented disability. A small percentage of students with a disability can participate in alternative assessments, but student progress and AYP toward 100% proficiency are still reported. Schools and districts that do not make AYP are subject to sanctions by the state, including providing compensatory education, vouchers for private schools, and even restructuring schools and terminating staff. Data from the 2010-2011 school year indicated 52% of Minnesota 11th graders met or exceeded proficiency levels set forth by the state. Only 12% of students receiving special education services met or exceeded proficiency levels (Minnesota Department of Education, 2011).

In February of 2012, Minnesota received a waiver for NCLB, which provided another avenue for school accountability and eliminated the requirement that 100% of students meet proficiency in reading and mathematics by 2014. Instead, schools and districts would be held accountable based on the Multiple Measure Rating (MMR), a growth model. Schools would be required to show progress at decreasing the achievement gap by 50% within six years (Minnesota Department of Education, 2012). Other changes to Minnesota's

accountability system included a rating score between 1 and 100 based upon four categories, similar to the NCLB categories: Proficiency, growth, a reduction in the achievement gap and graduation rate. The addition of the MMR provided schools and students more opportunity to work toward increasing student learning for all, including those with disabilities.

Process and content standards.

Minnesota's standards for mathematics, previously the Profiles of Learning, are comprised of four strands: Number and Operation, Algebra, Geometry and Measurement, and Data, Analysis and Probability (Minnesota Department of Education, 2007). The most recent mathematics standards were revised in 2007 and included mathematics concepts and skills all students would be expected to know and be able to do at all grade levels, K-12. Minnesota's standards were influenced by the national mathematics standards set forth by the National Council of Teachers of Mathematics (NCTM), as well as other local agencies, including: College and Work Readiness Expectations, American Diploma Project of Achieve, Inc., the Minnesota Educational Media Organization, and the review of standards from other states (Minnesota Department of Education, 2007). According to the Minnesota Department of Education Academic Standards:

The Minnesota K-12 Academic Standards in Mathematics set the expectations for achievement in mathematics for K-12 students. The standards are grounded in the belief that all students can and should be mathematically proficient. All students should learn important

mathematical concepts, skills, and relationships with understanding. The standards and benchmarks describe a connected body of mathematical knowledge that is acquired through the processes of problem solving, reasoning and proof, communication, connections and representation. (p. 2)

The National Council of Teachers of Mathematics (NCTM) responded to the country's demand for high quality standards in mathematics. In 1989, the organization released a set of content standards that addressed the perceived shortcomings of mathematics education and the ill effects of remedial mathematics instruction in the United States as outlined in *A Nation at Risk* (1983). NCTM has since revised the content standards, as well as suggested a set of teaching standards geared toward the increased success of all students. Curriculum standard revisions included a greater focus on problem solving and less focus on rote-memorization (Little, 2009; National Council of Teachers of Mathematics, 2004).

The redeveloped standards recognized the fact that high standards do not necessarily mean all students will be 100% proficient in mathematics. NCTM challenged both students and educators to meet high standards, but also acknowledged those standards could be different for each student: "This does not mean that every student should be treated the same. But all students need access each year they are in school to a coherent, challenging mathematics curriculum that is taught by competent and well-supported Mathematics Teachers" (National Council of Teachers of Mathematics Equity Principle, 2000,

para. 1). NCTM also emphasized the understanding that all students should be held to high standards in mathematics and that all students could learn when they were exposed to high quality curriculum and instruction (National Council of Teachers of Mathematics, 2000).

The NCTM recommendations are grouped into two categories: the Principles and Standards. The Principles according to the NCTM (2000) are guidelines to support the need for high-quality instruction. The Standards provide curriculum guidance about what students should know (content) and be able to do (process) at different grade levels. The content standards are organized into four age bands: Pre-K-2, Grades 3-5, Grades 6-8, and Grades 9-12 and includes: Numbers and Operations, Algebra, Geometry, Measurement and Data Analysis and Probability (National Council of Teachers of Mathematics, 2000). The five process standards describe what students should be able to do prekindergarten through grade 12 and include: (a) Problem Solving- the ability to apply strategies in a variety of situations; (b) Reasoning and Proof- make conjectures and investigate and evaluate arguments; (c) Communication- the ability use the” language of mathematics;” (d) Connections-recognizing the interconnection of mathematics; (e) Representation-using multiple modes of representation (National Council of Teachers of Mathematics, 2000). The NCTM also emphasized the idea that the research supports the importance of conceptual understanding in the area of mathematics and when a student reaches a level of understanding in mathematics, he/she is able to use and apply his/her knowledge in a variety of ways by combining factual and declarative

knowledge, along with procedural and conceptual understanding (National Council of Teachers of Mathematics Learning Principle, 2000).

The Common Core Initiative stemmed from a meeting with the nation's governors and as a response for the need to provide a common set of academic standards, though not considered national standards. No Child Left Behind (2001) left each state to develop its own content area standards. There was concern each state had a different set of academic content standards. So, governors from around the country concluded that a set of high academic standards, consistent among states, would provide the competitive edge necessary for students to succeed in a global economy (National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010). The National Governors Association (2010) and the Common Core Standards in mathematics also provided a provision for students with disabilities: "Common standards will provide a greater opportunity for states to share experiences and best practices within and across states that can lead to an improved ability to best serve young people with disabilities...and mathematics standards include information on application of the standards for English language learners and students with disabilities" (National Governors Association Center for Best Practices, 2010, Frequently Asked Questions, p. 4).

Minnesota has chosen not to adopt the Common Core Standards in the area of mathematics. Former Governor Tim Pawlenty and Tom Mushlinski, Executive Director of the Minnesota Council of Teachers of Mathematics, both indicate all students need access to high academic standards in the area of

mathematics. But, Pawlenty and Mushlinski believe the existing Minnesota mathematics standards developed in 2007 are more rigorous than that of the Common Core. Governor Pawlenty went as far as to say “The mathematics portion of the draft K-12 education standards unveiled today would water down Minnesota’s rigorous standards that require students to take algebra by eighth grade. In a hypercompetitive world, Minnesota should not adopt less rigorous standards than we currently have in place” (Stacey, 2010, Common Core ‘Less Rigorous’ section, para. 2).

Equal access.

Minnesota has recognized the need to support students with disabilities. In May of 2010, a pilot of a modified version of the MCA-II (MCA-M) in reading and mathematics was presented to Minnesota school districts, and the test was put into service in April 2011. Eligibility criteria for the MCA-M in mathematics included: failure to meet proficiency levels for two years, access to grade level content, a current IEP based on grade-level mathematics standards, and a determination a student would be unlikely to reach proficiency within the year the test was being administered (Minnesota Department of Education, Minnesota Comprehensive Assessment Draft Mathematics Test Specifications, 2011). The MCA-M still holds students with high incidence disabilities to the same rigorous mathematics standards as their same age peers. But, the modified achievement standards and presentation of the MCA-M make the assessment more accessible to all students. The test specifications clearly indicated which standards and benchmarks would not be assessed. And, recommendations from

special educators were also considered when developing the MCA-M test specifications.

Mathematics Pedagogy

There are many similarities in mathematics recommendations for students with and without disabilities. Promoting conceptual understanding and providing a balanced approach among procedural skills and declarative knowledge benefits all students. Instruction in both regular and special education classrooms recommend a transition from a focus of rote memorization and skills in isolation in favor of understanding the bigger picture in mathematics.

General education.

There has been disagreement regarding pedagogy for mathematics instruction within the general education classroom. The pendulum has shifted between conceptual understanding and skills based practice and back again. Between a behaviorist approach of teaching and learning mathematics in which students were passive recipients of knowledge, and lecture and practice were common. Students were taught specific skills, algorithms and procedures for solving problems, often called drill and practice; to a cognitive psychology perspective in which students were encouraged to understand big ideas and to think about thinking. The idea that students are active participants in their own learning has also evolved. Mathematicians and educators argue that students need a conceptual understanding of mathematics in order to successfully understand mathematics. For many, learning by discovery and constructing knowledge based upon students individual understanding and experiences best

support the teaching and learning of mathematics (Bruner, 1971; Cramer, 2003; Dienes & Golding, 1971; Lesh & Doerr, 2003; Lesh & Zawojewski, 2007; Piaget, 1970). Though, the nature of learning by discovery has shifted from an emphasis of simply discovering regardless of the accuracy of the outcome, to constructing and discovering knowledge that is also accurate (Latterell, 2005). Other theorists would argue students need a working knowledge of specific skills to enhance procedural understanding in order to manipulate numbers to provide a balance between conceptual and procedural understanding; and learning by discovery needs to be meaningful (Ausubel, 1977; Bransford, Brown & Cocking, 2000; Gagne, 1965; Novak & Gowan, 1984). The National Research Council (2000) and NCTM (2004) also support a balanced approach of procedural and conceptual understanding with an emphasis on reasoning and problem solving along with an increased focus on metacognitive skills.

The idea of problem-solving and learning by discovery are popular among contemporary educators. But, Ausubel (1977) contends learning by discovery is not always inherently meaningful and not all expository techniques are necessarily rote. Each is and can be effective depending upon the circumstances. Learning outcomes are dependent upon the substance, organization and experience provided. Discovery should be built upon a foundation of already existing knowledge and concepts to be meaningful. He asserts there are also developmental limitations to discovery and the method is inappropriate for teaching subject-matter content. According to Ausubel (1977), discovery is only fitting when students are at the concrete stage of cognitive

development. There is over-emphasis of discovery education and it is reasonable or inappropriate to assume learners should rediscover every principle (Ausubel, 1977; Novak & Gowan, 1984).

Ausubel's assertions still hold true today. The National Research Council (Bransford, Brown & Cocking, 2000) provides a synthesis of literature in the area of teaching, learning, and how to best support teaching for learning. Key findings of the research provide implications for education by addressing three learning principles: (a) students' preconceptions and experiences before arriving in the classroom impact their ability to engage in and understand new ideas and concepts, or fail to retain those concepts; (b) students' need a balance of procedural knowledge, conceptual understanding and the ability to organize that information; (c) students' need to think about and be conscious of their process of learning. The Council also provided recommendations for teachers: (a) access and use student's prior knowledge; (b) provide in depth instruction and multiple examples that promote both conceptual and procedural understanding; (c) teach metacognitive skills to the students within the context of the classroom and course work. The Council's research supports a balanced approach suggested by Ausubel over 30 years ago. Students can play a role in creating their own learning when they have the proper mathematical foundation to explore mathematics.

Mathematics instruction can also occur in settings outside of the regular classroom, either in place of or in addition to the core content in a regular classroom. The determination to provide instruction in a resource setting should

be determined by the IEP team. The determination should be made on a case by case basis and take into account the student's individual needs and ability to make adequate academic progress.

Resource room.

Resource classes provide direct services for a specific skill deficit (i.e. reading or mathematics) in a setting outside of the general education classroom. From a historical perspective, mathematics curriculum and instruction in a resource setting for students with disabilities has been heavily focused on remediation and repetition reminiscent of behaviorism. Students were provided specific skill instruction with little regard to conceptual understanding. In the 1960's the paradigm within mathematics education shifted, with an increased emphasis on discovery learning, and a constructivist approach to teaching. Special educators were skeptical of the model and its effectiveness for students with disabilities. Much instruction for students with learning disabilities had focused on direct instruction, strategy instruction and curriculum based measures (Woodward, 2004). Miller and Mercer (1997) suggested curriculum and instruction should support students' future goals as well as foster independent living skills.

Current research findings for students with learning disabilities support specific strategy instruction and instruction in metacognition to enhance problem solving abilities as well as increasing students' ability to generalize (Gagnon & Maccini, 2001; Gagnon & Maccini, 2007; National Mathematics Advisory Panel, 2008). In a meta-analysis of mathematics interventions for students with Learning

Disabilities, Gersten et al (2008) found that explicit instruction, student verbalization of mathematical reasoning, visual representations, range and sequence of examples, multiple and heuristic strategies, on-going formative assessment data for teachers, providing data and feedback to students on their mathematics performance, and peer-assisted mathematics instruction as the most effective interventions for students with learning disabilities.

Integrated or inclusive classroom, tracking, and effects and outcomes.

Many schools look to address the academic needs of students with disabilities in integrated or inclusive classrooms. In this model, students with disabilities receive their instruction and services within a regular classroom. Special education services may be provided indirectly to the student through a variety of ways, including consultation, co-teaching, or providing an instructional assistant. In a consultation model, students with disabilities receive instruction from regular classroom teachers; special education teachers consult with the classroom teachers regarding appropriate modifications and accommodations (Idol, 2006). In a co-teaching model, the special education teacher works cooperatively with the regular education teacher within the same classroom, providing services to all students, including those with disabilities. The regular education teacher and special education teacher have shared responsibility for planning, delivery of content and evaluation of all students (Kloo & Zigmond, 2008). Instructional assistants or paraprofessional can also provide support to students with disabilities in a regular classroom. Instructional assistants

accompany a student or group of students to their regular classes to provide special education assistance within the regular classroom (Idol, 2006).

One common solution for addressing the academic achievement among all students has been tracking or ability grouping, and providing instruction outside of a regular classroom. But, research suggests students that are “tracked” or placed in ability groups are ill served (Boaler, 2008). Students placed in ability groups often do not have the opportunity to engage in rich conversations with their peers. Often, curriculum in “tracked” groups or classes focuses on remediation of procedural skills, which creates a larger gap because students are not accessing grade level content. And, the focus on procedural skills in isolation does not promote transfer of learning. Students need additional instruction in conceptual understanding to support their learning needs (Boaler, 2008; Donovan & Bransford, 2005). “Tracking has consistently consigned disadvantaged groups of students to mathematics classes that concentrate on remediation or do not offer significant mathematical substance” (National Council of Teachers of Mathematics Equity Principle, 2000).

Research is mixed when determining academic success of students with disabilities in both mainstream/inclusion classrooms and resource classes. According to the U.S. Department of Education 30th Annual Report to Congress (2008), approximately 54% of school age students with disabilities spent more than 80% of their school day in a regular classroom. During the 2009-2010 school year, The Minnesota Part B Annual Performance Report (APR) (2011) indicated slightly different findings in that 62.5% of students aged 6-21 spent

80% or more their school day in a regular classroom and 8.8% spent less than 40% of their day in a regular classroom. According to McLeskey and Waldron (1998), students in inclusion classes made similar academic progress in mathematics, as did their mainstream peers. This progress, however, was not statistically different than that of students receiving mathematics instruction in a separate class. The authors argue, however, that those results provide support to the argument that mathematics instruction should occur in a regular, inclusive classroom. Fore et al. (2008) site numerous research studies on both sides of the debate. What is lacking in the research is information regarding academic achievement of high school students in both inclusive classrooms and separate classes. Fore et al. (2008) conducted an exploratory study of high school students in mathematics and determined, consistent with previously reported information, no significant difference in academic performance of high school students with learning disabilities in inclusive and separate classrooms. According to the authors, the “results of the study do not provide any statistical support for one class placement over another” (Fore et al., 2008, p. 65). Lee, Whemeyer, Soukup & Palmer (2010) found students were more actively engaged in academic tasks in a regular classroom when teachers were actively implementing curriculum modifications, but unfortunately, modifications were less consistent in the regular mathematics classrooms.

The research is inconclusive regarding the most appropriate setting for mathematics instruction as it relates to academic success for all students with high incidence disabilities. What is evident in the literature is the concern

regarding the quality of mathematics instruction in both inclusive and resource settings. It seems instruction can be meaningful in a variety of environments and there is overlap in best practice for students with and without disabilities.

Issues with Placement

Both IDEA (1997) and NCLB (2001) identify a need for a rigorous curriculum taught by highly qualified teachers. But, there is concern students with disabilities may not always have access to a rigorous, high quality curriculum or instructors that feel qualified to teach them. Or, if students do have access to a rigorous curriculum and highly qualified teachers, appropriate supports and services are not in place to promote academic success. There are concerns with providing mathematics instruction outside of a regular classroom and that placement in a resource mathematics class continues to perpetuate, not close, the achievement gap.

There are many similarities in recommendations for students with and without disabilities. Promoting conceptual understanding and providing a balanced approach among procedural skills and declarative knowledge benefits all students. Instruction in both regular and special education classrooms recommend a transition from a focus of rote memorization and skills in isolation in favor of understanding the bigger picture in mathematics.

Equity, access to curriculum, and teacher attitudes.

Special education teachers often feel less confident about teaching mathematics in the manner suggested by the National Council of Teachers of Mathematics (NCTM). General educators feel more prepared to teach all

mathematics course topics but not how to teach special education students (Gagnon & Maccini, 2007; Maccini & Gagnon, 2006). It would not be unreasonable to assume a special education teacher may avoid certain content in a separate classroom if they did not have knowledge of or familiarity with state standards and content. Teachers must have a deep understanding of the content in order to teach effectively. Special education teachers are often required to teach multiple courses across content areas, so they are ill-prepared to be experts in multiple subject areas, including mathematics. According to Maccini and Gagnon (2002), 45% of special education teachers of mathematics were not even familiar with the goals of the NCTM standards compared with 95% of general education teachers. Special education teachers also reported taking fewer mathematics methods courses, but felt better prepared than regular education teachers to teach students with disabilities based upon completion of special education methods courses (Maccini & Gagnon, 2002).

Some researchers assert the curriculum within separate classrooms is often ineffective, non-existent or a watered-down version of the mainstream curriculum and that the instruction within the separate classrooms is not individualized (Fuchs & Fuchs, 1994; Wasburn-Moses, 2006; Winzer, 2000). Students and families also question rigor and content. According to the National Council on Disabilities (1989) both students and parents state schools often have low expectations for students with disabilities, and the goals and objective proposed are not appropriate. Wasburn-Moses (2006) indicates two common themes impacting the effectiveness of special education programs reported by

special education teachers in her study: (a) lack of program coherence and (b) lack of options. It may be reasonable to ask whether core instruction in mathematics in a separate setting is appropriate if students with disabilities are to be held to the same academic standards as their non-disabled peers.

According to Wasburn-Moses (2006) there are also perceived difficulties within mainstream classes. Specifically, some special education teachers believe core content classes can be too rigorous, especially when students lack the support of modifications and accommodations. General education teachers use less research-based instructional practices and assessment accommodations than special education teachers (Maccini & Gagnon, 2006). Teachers also reported a lack of options for coursework available to students with disabilities, which increases the need of separate classrooms. With concerns regarding effectiveness and options outside of special education classrooms, it seems questionable that moving a student to the regular classroom is more appropriate.

Regular classrooms may be able meet the educational needs of all students with disabilities. Though, certain conditions must exist to support success. But, students who lack prerequisite skills may not be successful in regular mathematics classrooms. According to Lee, Wehmeyer, Soupkup and Palmer (2010), students were more academically engaged during teacher directed instruction than during independent work time. When curriculum modifications related to content standards were implemented, there was a positive relationship between student engagement and academic responses. Again, there is no direct answer indicating one placement is superior to the other.

Achievement gap.

The achievement gap continues to exist in the area of mathematics.

Students with disabilities continue to struggle. Often, difficulties with mathematics become apparent in elementary school and continue throughout middle and high school. Students with mathematics difficulties operate over two grade levels behind their peers without disabilities and can be a part of classrooms in which that achievement gap can span as many as seven years (Little, 2009; Loveless, 2008).

According to Wagner, Newman, Cameto, and Levine (2006) as reported in the National Transitional Longitudinal Study, there is a gap between the academic achievement of students with disabilities and their non-disabled peers in mathematics, with a greater portion of those with disabilities scoring below the mean on mathematics calculations and applied problems. The National Assessment of Educational Progress (NAEP) (2011) also reports an achievement gap among students with and without disabilities, reporting nationally, the scale score in mathematics for eighth grade students with a documented disability at 249 while their non-disabled peers averaged a scale score of 283. Scores specific to Minnesota demonstrate an average higher than that of the national average, yet for both groups, the scores still demonstrate a gap in achievement among students with and without disabilities. Students with a disability had a scale score of 260 as compared to their non-disabled peers with a scale score of 295 (U.S. Department of Education Institute of Educational Sciences, National Center for Educational Statistics, 2011).

The goal of both NCLB and IDEA has been to raise the academic bar for all students, including those with disabilities. The achievement gap continues to exist in the area of mathematics. There are no data to support where mathematics instruction should occur for students with disabilities, only that there are difficulties in both regular and special classes.

Summary

There are many considerations associated with mathematics instruction for students with high incidence disabilities. There is support in the literature for inclusion within a regular classroom and instruction outside of the regular classroom. The review of federal law, specifically NCLB and IDEA, within the literature review, provided an outline of the guidelines established by federal policy initiatives to support special education Case Managers and Individual Education Plan (IEP) teams in making decisions about where educational instruction should occur for students with high incidence disabilities.

NCLB and IDEA require students with disabilities to participate in a rigorous curriculum related to academic standards set forth by the state. IDEA also mandates students with disabilities be educated in the least restrictive environment. Interpretations of the two federal laws often result in all or nothing policies. IDEA does set forth criteria in which students with disabilities can be educated outside of the regular classroom, specifically when education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily (IDEA, [section] 1412(5)(B)).

There is much overlap in mathematics pedagogy for students with high incidence disabilities and without. The literature is clear from the perspective of the NCTM, what should be happening in all mathematics classrooms. Theoretically, then, it should not matter where a student with a high incidence disability receives mathematics instruction. Currently, what is known, though, is in regular classes, teachers are not necessarily providing the supports and accommodations necessary for the academic success of students with high incidence disabilities. And in special education classrooms, the content and rigor are called into question, as is the experience and background knowledge of the teacher. Included studies provided information regarding mathematics pedagogy for students with high incidence disabilities and are abundant in the literature.

The review provided an overview of how federal policy initiatives, including the No Child Left Behind Act and the Individuals with Disabilities Education Act, the state of Minnesota academic standards in the area of mathematics, the National Council of Teachers of Mathematics and the Common Core Initiative, drive the mathematics curriculum and what students should be learning in the classroom. The relevant literature provided support that state and federal guidelines, as well as local assessment data, dictate how placement decisions should be made regarding programming and instruction for students with disabilities, including providing a Free and Appropriate Public Education (FAPE) in the Least Restrictive Environment (LRE).

Further research is necessary to understand the realities that exist regarding the phenomena of placement decisions of high school students with

high incidence disabilities for special education Case Managers at the high school level. Gaining a greater understanding of the experience of Case Managers through qualitative research may help discover common themes and best practices for special education Case Managers when making placement decisions. In order to construct knowledge of the experiences of Case Managers making mathematics placement decisions for high school students with high incidence disabilities, through a multiple case study research approach, the research questions of this study will be reiterated:

1. What is the process of special education Case Managers in making mathematics placement decisions for high school students with high incidence disabilities?

2. What influences the decision making process of special education Case Managers in regards to making mathematics placement decisions for high school students with high incidence disabilities?

3. How does the placement process differ in urban, rural and suburban schools in the state of Minnesota?

Chapter 3

Methodology

Introduction and Statement of the Problem

State and federal guidelines have been established to support special education Case Managers and Individual Education Plan (IEP) teams in making decisions about where educational instruction should occur for students with disabilities. Guidelines from the Individuals with Disabilities Education Act (IDEA) (2004) indicate placement decisions are to be made on an individual basis and based upon input from a team of individuals, including the student, parent or guardian, general education teacher, representative of the school district and a case manager. Procedures exist that dictate how placement decisions should be made. Though, there is little research about the process case managers utilize in making mathematics placement decisions for high school students with high incidence disabilities.

The problem is, regardless of where mathematics instruction occurs, students with high incidence disabilities should have access to a rigorous curriculum, aligned with the curriculum standards set forth by state and federal guidelines. But, there are concerns with quality of instruction and access to the curriculum in both resource and general class placements. Developing an understanding the placement process may help determine best practices that support the current population of special education case managers in finding a balance between meeting student needs, and meeting state and federal accountability guidelines related to mathematics standards.

This chapter begins with an overview of the methodology, including: (a) rationale for research approach (b) research sample and sampling procedures (c) summary of information needed (d) overview of the research design (e) data collection methods (f) analysis and synthesis of data (g) ethical considerations and (h) issues of trustworthiness. Finally, the chapter concludes with a brief summary.

Research Questions

The purpose of this study is to describe the experiences of case managers making mathematics placement decisions of high school students with high incidence disabilities.

1. What is the process of special education case managers in making mathematics placement decisions for high school students with high incidence disabilities?

2. What influences the decision making process of special education case managers in regards to making mathematics placement decisions for high school students with high incidence disabilities?

3. How does the placement process differ in urban, rural and suburban schools in the state of Minnesota?

Research Methodology

The case study is the development of a thorough and detailed description and analysis of a case or multiple cases in an effort to provide a deep understanding of a phenomenon (Creswell, 2007; Stake, 2006; Yin, 2009). This multiple case study used a variety of data collection techniques to answer the

overarching questions about the decision making process of mathematics placement of high school students with high incidence disabilities. The purpose of this study was to describe the experiences of case managers making math placement decisions of high school students with high incidence disabilities and the issues that may influence the decision making process.

Rationale for research approach.

A case study design is best used for investigating the case manager's experience and what that experience means. Through interviews, analysis of critical review instruments, questionnaires and document review, the researcher provided a "case description and case based themes" (Creswell, 2007, p. 73) related to case managers and mathematics placement decisions. In seeking to provide rich descriptions of the placement process, the study addressed the following questions: (a) What is the process of special education case managers in making mathematics placement decisions for high school students with high incidence disabilities? (b) What influences the decision making process of special education case managers in regards to making mathematics placement decisions for high school students with high incidence disabilities? (c) How does the placement process differ in urban, rural and suburban schools in the state of Minnesota?

According to Bloomberg and Volpe (2008), "qualitative research is suited to promoting a deep understanding of a social setting or activity as viewed from the perspective of the research participant" (p. 9). The use of multiple methods of data collection lends credibility to qualitative research and creates an in-depth

understanding of the phenomenon being studied (Creswell, 2007). This study used multiple methods of data collection, including a survey, semi-structured interviews of 15 participants, overview of organizational documents and a critical incident instrument, to create an in-depth understanding of the placement process through a variety of perspectives. In contrast, the quantitative research approach is focused on relationships between variables and testing theories through the use of the scientific method. A quantitative research approach was not appropriate to answer the research questions as there were no variables to compare or theories that could be tested through the scientific method.

The use of case study as a qualitative research method had been specific to the fields of law and medicine. More recently, case study has surfaced in education. According to Tellis (1997), case study can satisfy the three principles of qualitative research: describing, understanding and explaining. Creswell, (2007) describes case study research as a “qualitative approach in which the investigator explores a bounded system (case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information” (p. 73). The multiple case provided an in-depth description of the phenomena being studied through replication of the case, and allowed for cross-case comparisons. The research questions best lent themselves to a multiple-case design that “strives toward a holistic understanding of cultural systems of action” (Feagin, Orum & Solberg, as cited in Tellis, 1997, p. 5). This case study provided multiple perspectives for analysis, as recommended by Tellis (1997), including general and special education teachers,

administrators, and parents and students. This case study built a frame-work that included the conditions under which the phenomena (placement process) has occurred, as recommended by Yin (2008).

Participants and Sampling

The case study employed purposeful sampling as the researcher selected individuals and sites “because they can purposefully inform an understanding of the research problem and central phenomenon in the study” (Creswell, 2007, p. 125). Purposeful sampling is the most typical method for studying phenomena via case study (Bloomberg & Volpe, 2008; Creswell, 2007; Yin, 2009). Within the purposeful sampling, the researcher also employed convenience sampling in that the researcher had cursory knowledge of the specific sites through professional acquaintances. The researcher developed three separate cases in context with literal replication, as recommended by Yin (2009). Special education case managers were associated with three separate high schools bound by three different geographic areas in Minnesota, to achieve the maximum variation necessary for identification of common patterns. Participants were drawn from one school in an urban setting; one school in a suburban setting; and one school in a rural setting to form the collective case. Purposeful selection was also based upon variation across certain distinguishing characteristics, including socio-economic status of the high school and geographic location of the high school. A snowball strategy, or network or chaining (Patton, 2002), occurred when principals were asked to refer special education and general education teachers,

parents of students with high incidence disabilities and students with high incidence disabilities.

The research sample was comprised of 15 individuals. Included in the sample were three case managers of students with high incidence disabilities, three general education mathematics teachers, three administrators, three parents of high school students with high incidence disabilities and three high school students with high incidence disabilities, shown in Table 1.

Table 1

Number of Study Participants and Geographic Location

Participant	Rural	Suburban	Urban
Case Manager	1	1	1
Mathematics Teacher	1	1	1
Administrator	1	1	1
Parent	1	1	1
Student	1	1	1

Participant descriptions.

Rural

The administrator that participated in the study has been in the rural district for less than five years. The position at the rural district is also the first administrative position held. The administrator reported participation in five to eight Individual Education Plan (IEP) meetings per year.

The mathematics teacher at Rural Secondary School is one of three mathematics teachers and has been teaching at the school between three and four years. This is also the mathematics teacher's first teaching job. The mathematics teacher's primary teaching responsibility includes: Pre-Algebra, Algebra and Geometry within a general education classroom. Multiple disability areas are present in the teacher's classroom, including those with Autism Spectrum Disorder (ASD), Emotional/Behavior Disorder (EBD), and/or a Specific Learning Disability (SLD). The mathematics teacher attends five to eight IEP meetings per year.

The case manager has worked at Rural Secondary School between five and ten years and is currently licensed in a high incidence disability area. The case manager currently manages 16 to 20 students. Students in his care have documented disabilities in the areas of: Developmental/Cognitive Disorders (DCD), ASD, EBD, LD and Other Health Disabilities (OHD).

The rural parent interviewed is new to the special education process. His child was recently determined eligible to receive services under the category of Other Health Disabilities (OHD) due to Attention Deficit Hyperactivity Disorder (ADHD). The parent indicated his child spends the majority of his school day in the general education classroom. According to the parent, his son struggles with mathematics, writing and organization.

The rural high school student is a 10th grade male. He was recently determined eligible for special education services, though he is not sure under

which disability category. The student reports his areas of struggle are primarily organization and mathematics

Suburban

The administrator at Suburban High School has worked as a licensed administrator for five to 10 years. She reports she has attended over 29 IEP team meetings this year. Attending IEP meetings is a shared duty among all administrators in the building.

The suburban mathematics teacher has been a licensed mathematics teacher for 11 or more years. His primary teaching responsibilities include Geometry and Advanced Algebra. The mathematics teacher regularly provides mathematics instruction for students with documented disabilities in the areas of DCD, ASD, EBD and SLD, and attends between 16 and 20 IEP meetings annually.

The case manager has worked as a case manager for 11 or more years. She is currently licensed in a high incidence disability area. The case manager currently manages between nine and 12 students. Students in her care have documented disabilities in the areas of: ASD, EBD, SLD and OHD.

The suburban parent chose not to provide demographic data. During the interview the parent did indicate she is currently an elementary special education teacher. The student is currently a 12th grader at Suburban High School. He has been receiving special education services for five to 10 years. The student reports his disability category as OHD and SLD. He primarily struggles with reading, writing, mathematics, organization and staying on task. The student

reports he receives a majority of his instruction, including mathematics, in the general education classroom.

Urban.

The administrator at Urban High School has worked as a licensed Administrator for more than 11 years. She reports she has attended over 29 IEP team meetings this year. Attending IEP meetings as a district representative is generally one of the roles specific to this Administrator.

The urban mathematics teacher has been a licensed mathematics teacher for three to four years. Her primary teaching responsibilities include Geometry and a co-teach Geometry. The mathematics teacher regularly provides mathematics instruction for students documented disabilities in the areas of OHD, EBD, SLD, and Speech and Language and attends less than five IEP meetings annually.

The case manager has worked as a case manager for less than one year. She is currently licensed in a high incidence disability area. The case manager currently manages 25-28 students. Students on her case load have documented disabilities in the areas of: SLD and TBI (Traumatic Brain Injury).

The urban parent is not new to the special education process. Her child has been receiving services under the category of Other Health Disabilities (OHD), due to Attention Deficit Hyperactivity Disorder, for five to 10 years. The parent indicated her child spends the majority of his school day in the general education classroom. The parent reports her son struggles with reading, mathematics, organization and staying on task.

The urban high school student is a 10th grade male. He indicated he has been receiving special education services for three to four years under the category of Speech and Language. The student's mother report he has been receiving services for five to 10 years under the category of OHD. The student survey response shows the primary area of struggle is mathematic. At this time, the 10th grader receives his mathematics instruction in a general education setting.

Overview of Information Needed to Conduct the Study

The multi-case study focused on 15 participants from three high schools in the state of Minnesota. In seeking to understand the process of making mathematics placement decisions for high school students with high incidence disabilities and the influences of the decision making process, three research questions were developed in an attempt to gather the necessary information. Three categories of data were necessary to answer the proposed questions: (a) contextual, (b) perceptual and (c) demographic information.

Contextual information about the schools assisted in the understanding of the culture and environment of the schools, as well as the history, vision, and operating principles of the school, including structure, roles, rules and procedures of the schools, teachers, and programs. Demographic data provided descriptive information regarding participants: gender, years of teaching, years working/as a parent of a child receiving special education services, years receiving special education service, current assignments, and level of education. Perceptual data from all participants provided descriptions of experiences and of the

phenomenon of the process of, and influences surrounding, mathematics placement decisions of high school students with high incidence disabilities.

Overview of the Research Design

Methodology.

The research process began with a review of the literature to determine current research related to case management and mathematics placement of high school students with high incidence disabilities. Upon successful completion of proposal defense, the researcher completed all necessary procedures outlined for live human research by the Institutional Review Board (IRB). Upon IRB approval, potential administrative research participant were contacted via-email.

Upon verbal consent to participate, consent forms, surveys and interview questions, as well as a description of the study, were sent electronically to principals and/or administrators. Principals and/or administrators were asked whether the researcher should contact teachers and case managers directly. The rural principal made contact with the remaining participants. The special education teacher was chosen by the principal because he/she was the most senior special education teacher on staff and had previous experience teaching resource mathematics courses. The mathematics teacher was chosen because he/she has taught many students with an IEP, regularly collaborates with the special education staff, and does a nice job with accommodations. The parent was chose because of his relationship with the administrator. The administrator knew that he would be willing to help. Both the urban and suburban initial contact administrators referred the researcher to an assistant administrator for

scheduling and participant support. The urban administrator made contact with remaining participants. Mathematics teachers and case managers were chosen based on their prep schedule; the parent and student participants were chosen based upon special education social worker recommendation. The suburban administrator also selected the remaining participants. According to the administrator, the case manager was selected because she is working on her Director of Special Education Administrator license, and is the department chair. She was asked to select a parent and student who she thought would be willing, and who worked well with the school. The mathematics teacher was selected because he works with students with student that receive special education services.

The Surveys were used to collect both demographic and perceptual data. Semi-structured interviews were conducted with the 15 participants associated with three different high schools located in the state of Minnesota. Critical incident instruments (Appendix D) were given to special education case managers at the end of each interview to provide perceptual data about the placement process. Contextual data was collected through interviews and by reviewing organizational documents.

Data Collection Methods

Literature review.

In order to develop a better understanding of the influences surrounding the mathematics placement decisions of high school students with high incidence disabilities, an ongoing review of literature was conducted prior to the

development of the research proposal. Literature relative to the issue included a brief description of the background and context surrounding the issue of math placement, and the federal policy initiatives that influence placement decisions, including The Individuals with Disabilities Education Act (IDEA) and the No Child Left behind Act (NCLB). The review also included information regarding the influences of curriculum mandates and recommendations of professional organizations related to what students should know and be able to do in the area of mathematics. Finally, the review provided relevant research related to pedagogy in special education and general education classrooms, as well as the impact of participating in one class placement over another.

The literature review was conducted through database searches over a two year period, and continued through the data collection process. Database searches through the University of Minnesota-Duluth library included: Academic One File, Academic Search Premier, ERIC, Google Scholar, JStore, and Sage Premier. Articles selected for review included those related to special education, legislation, qualitative research methods and mathematics, and were gleaned from peer reviewed journals. Accompanying books and texts were used to supplement the peer-reviewed journal articles. Specific information regarding the literature review can be found in chapter two of this study.

Instrumentation and materials.

Survey.

The researcher sent e-mails to prospective administrators describing the purpose of the study and inviting participation in the study. Those consenting to

participate in the study were provided a copy of the survey electronically. At that time, the researcher also inquired about mathematics teachers, case managers, parents and students that may be interested in participating in the study. Based on recommendations from the administrators, participant names and contact information was shared with the researcher. The administrator forwarded electronic copies of the surveys to the participants; participants responded to the surveys prior to the semi-structured interviews. The survey was designed to collect profile data and some perceptual data. The educator surveys differed slightly, based on the individual's role within the school.

Interview.

The interview was the primary method for collecting data. According to Kvale, 1996, "the qualitative research interview attempts to understand the world from a subjects' point of view, to unfold the meaning of people's experiences, to uncover their lived world..." (p. 1). A semi-structured interview technique was employed, allowing for the researcher to guide the questioning and direct the flow of the interview while allowing the participant to answer in as much detail as they choose. This format also allowed for follow up questions and clarification by the researcher. Some interview questions were model after those on the Virginia Department of Education Special Education Identification Process Survey (Virginia Department of Education).

The researcher used the study's three research questions as the framework to develop interview questions for the five categories of participants. Each category of participant (special education case manager, general education

teacher, principal, parent, and student) had a slightly different set of questions, based on their role within the context of the study. A matrix was developed to show the relationship between the study's research questions and the interview questions. Upon approval of the interview questions, pilot interviews were conducted in person for each category of participant. Based upon the themes resulting from the pilot interviews, no additional opened ended questions were added, nor existing questions changed or removed.

The researcher sent an e-mail to administrators with suggestions for meeting dates. The administrators at each site sent confirmation e-mails with an agreed upon date and times schedule for participant interviews. Prior to the interviews each administrator was provided with an electronic copy of the consent form and the interview questions for each participant. The administrators distributed the questions and consent forms prior to the interviews. Written consent to participate in the study was granted prior to interviews. All interviews were conducted in person or over the telephone and audio recorded in their entirety. Upon completion of the interviews, the case managers were asked to complete a critical incident document related to mathematics placement decisions at a recent Individual Education Plan (IEP) meeting. All interview recordings were transcribed verbatim by a paid professional transcriber.

Critical incident.

The critical incident form (Appendix D) allowed the participants to engage in a reflective process relative to making mathematics placement decisions and the influences and experiences that occurred related to that process during IEP

meetings. The critical incident form provided additional perceptual data to the researcher, allowing for the revelation of perceptions that may not have presented themselves during the semi-structured interview or the questionnaire. The case managers were asked to complete the critical incident form and return it to the researcher electronically for coding of themes. The critical incident form was developed by the researcher and was field tested along with the pilot testing of interview questions. Based on the results of the field test, the critical reflection instrument was not refined. Participants were asked to return the instrument electronically.

Data Analysis and Synthesis

Data analysis for this study came in a variety of formats. Results from the survey were recorded in a data table. Interviews were recorded and transcribed by a professional transcriber. The interviews were then analyzed and coded for themes using a modified version of the Hycner's 15 step process for phenomenological analysis of interview data, which included reducing the data and looking for commonalities. Finally, the critical incidents forms were also recorded on data tables and coded for themes. Because this was a qualitative, multiple case study, the goal was to provide rich descriptions of the phenomenon from the varying perspectives of: case manager, general education teacher, principal, Parent and student.

Ethical Considerations

It is the duty of the researcher to ensure the privacy and safety of all participants through a variety of channels. The researcher complied with the

procedures outlined in the IRB process regarding research and live human subjects through the University of Minnesota. All participants were provided informed consent which allowed for the awareness and understanding of the purpose of the study prior to the onset of the study. The researcher also asked the participants if they have any questions and informed them they had the right to opt out of the study at any time. Each individual participant was given a pseudonym, as was the school, to protect anonymity. In published data, the pseudonyms will be used to protect the identity of all participants. Caution was taken with the electronic storage of the collected data, including using a password protected computer and separate storage of identifying characteristics. Hard copies of surveys and related research documents were stored in a locked file cabinet.

Issues of Trustworthiness

Qualitative research differs from quantitative research as it relates to reliability and validity. Qualitative research methods rely on issues of trustworthiness, or credibility and dependability, in how the work is being described. Bloomberg and Volpe (2008) have synthesized the literature surrounding trustworthiness and identified different ways in which qualitative studies, including the present study, can and will provide evidence to support credibility: (a) make known personal biases (b) discuss personal involvement in the field (c) triangulation of data (d) member checking and (e) presenting negative findings or discrepant findings. Personal biases and assumptions as well as personal involvement in the field were disclosed in Chapter 1.

Assumptions were re-examined and bracket during the data analysis process. Triangulation of data was employed by collecting and analyzing data from multiple perspectives as well as multiple instruments, including the survey, critical incident instruments and semi-structure interviews. Member checking occurred during the data analysis process. Research participants were provided e-mail copies of interview transcripts, as well as themes and interview summaries to ensure accuracy. There were no negative finds to report in the research.

Bloomberg and Volpe (2008) also outline procedures to assist with dependability, or “tracking the process and procedures used to collect and interpret data” (p. 78). This was accomplished through the use of providing detailed descriptions of the data collection and analysis process, as well as using inter-rater reliability and the training of independent judges in the coding process. Because this was a case study design, generalizability based on a representative sample was not the goal. But, providing rich descriptions and detailed information by the researcher may allow the reader to determine if the information gathered from the study may be transferable to another setting.

Summary

This chapter provided an overview of the methodology of the qualitative research method of multiple case study. The chapter contained a rationale for the research approach as well as descriptions of the research sample and sampling procedures. The chapter also provided a summary of information needed, as well as the data collection methods and analysis techniques employed. Finally, the

chapter provided a detailed account of the process for addressing ethical considerations and overall issues of trustworthiness.

Chapter 4 provided a detailed account to the data analysis process, as well as case descriptions and key findings. It is the hope of the research this multiple case provides rich and varied descriptions of the process of special education case managers in making mathematics placement decisions for high school students with high incidence disabilities and the influences surrounding the placement process. The intent of this study is to make a contribution to the understanding of case managers and the issues they face when making mathematics placement decisions for high school students with high incidence disabilities.

Chapter 4

Results

The purpose of this study was to describe the experiences of case managers making math placement decisions of high school students with high incidence disabilities and the issues that may influence the decision making process. This chapter includes a description of the data analysis process. The chapter also includes rich descriptions of each case: rural, urban and suburban. Finally, the chapter presents key findings obtained through semi-structured interviews with 15 participants, including three parents of high school students with a high incidence disability, three high school students with a high incidence disability, three case managers of a high school student with a high incidence disability, three high school mathematics teachers and three high school administrators from three different high schools in three different geographic areas: rural, suburban and urban. Each case was analyzed separately and followed the process outlined in the data analysis, then compared in the findings as a multi case analysis.

Data Analysis

Data analysis for semi-structured interviews followed, for the most part, Hycner's (1985) guidelines for interview data, with a few modifications to the transcript review. These modifications will be addressed as they occur. The first step in Hycner's process is transcription of the recorded interviews. The researcher sent the audio recordings to a professional for transcribing. Upon receipt of the transcripts, the researcher listened to the recordings while reading

through the transcripts to ensure accuracy of the transcripts, making adjustments when necessary. The transcripts were then copied to a two-column form for analysis, with the verbatim transcripts in the left-hand column; the right hand column was left blank for delineating units of general meaning relevant to the research questions.

The second step in Hycner's (1985) process called for the bracketing of assumptions and phenomenological reduction. The researcher again listened to the interviews in an attempt to let general meanings emerge. The researcher also attempted to suspend (bracket) assumptions and meanings associated with the recordings, to the greatest extent possible, to allow the data to emerge. The researcher disclosed assumptions in chapter one prior to beginning the data collection process.

The third phase of the analysis process included re-listening and re-reading transcripts to allow a context to emerge and gain a "sense of the whole" (Hycner, 1985, 281). The researcher listened to each interview two additional times and read through the transcripts two additional times. This allowed the researcher the opportunity to immerse into the data and provide a context for themes that may develop. This also assisted in the coding process, as the researcher was familiar with the content, as well as the context in which statements occurred.

The fourth step of Hycner's (1985) analysis process was delineating units of general meaning. This included "getting the essence of the meaning expressed in a word, phrase, sentence, paragraph or significant non-verbal

communication” (p. 282). At this phase, the units of general meaning are not necessarily tied to the research questions and may be redundant. The researcher indicated the units of general meaning by highlighting the sentences, phrases and paragraphs that were deemed significant, leaving the information in the participants own words. Member checking occurred during this step. The researcher e-mailed transcripts to participants for their review. This option allowed participants to check for accuracy of quotes and provide clarification, if necessary. Three participants responded with feedback; one participant provided clarification of a point, the other two indicated the transcripts appeared accurate.

The fifth step in Hycner’s analysis process was to delineate units of meaning relevant to the research questions. This involved assessing each unit of general meaning as it related to the research questions. Those general units were then copied to the right side of the analysis form. Those that were not relevant to the research question were not recorded.

The sixth step involved training an independent judge to verify the units of relevant meaning. The researcher demonstrated to a fellow special education teacher, not a part of the study, the process by which the analysis and identification occurred. The colleague reviewed multiple transcripts. Discrepancies that occurred were resolved through discussion.

Step seven of Hycner’s method included eliminating redundancies. This process involved eliminating statements or phrases that were clearly redundant. The researcher changed the font color of the redundant information to red so that it was still visible.

The next two steps, clustering units of relevant meaning and determining themes from clusters of meaning were done concurrently. A new document was created. Units of relevant meaning were copied and pasted into groups, or clusters, of similar meaning. Themes were developed bases upon the meanings. Because each case was analyzed separately, the themes will be discussed individually within each finding. The cross case analysis will also be discussed.

Step ten in the analysis process included writing a summary for each individual interview. The summary was based upon the themes general development of the meaning and to provide a “sense of the whole” (Hycner, 1985, p. 291).The transcript were also reviewed during this process.

The next two steps in the analysis included retuning to the participants the summary and themes, as a way to check for validity, and modify summaries and themes, if necessary. Themes and summaries were e-mailed to all participants. Three participants responded and had no clarification or recommendations for changes. Because no clarifications or recommendations were made, follow-up interviews were not needed.

The next step in the analysis process was to identify general and unique themes for all of the interviews. The researcher did this by analyzing the theme data sheets, noting the frequency with which participants made mention of a concept related to the clusters of meaning. This was done within each case and as a cross case or multi case comparison. The researcher identified four key findings that were common across all cases and one finding that was relevant to only one case.

The next step in Hycner's (1985) analysis process was that of contextualization of themes. The researcher identified specific participant quotes to exemplify the meanings and themes within the findings. The use of participant language lent to the feeling behind the story being told.

The final phase in the analysis process includes writing a composite summary of all of the data. The findings reported in this chapter will serve at the composite summary. The findings will describe the placement process and the influences case manager's face when determining where a student with a high incidence disability should receive mathematics instruction.

Case Descriptions

Each case will be reported individually. According to Stake (2005), "individual cases should be studied to learn about their self-centering, complexity, and uniqueness...each case should be understood in depth" (*Kindle location 431*). A cross case analysis will follow the individual reports.

Rural case.

Description.

Rural high school is located in North Central Minnesota. The secondary school consists of fifth through 12th grade students, though the layout of the school is such that the high school students are separate from the middle school students. The building houses between 350 and 400 seventh through 12th grade students. The ethnic make-up of the rural district is 96% white. This is significantly higher than the state average of 7%. Approximately 50% of the students are on free and reduced lunch. Again, this is higher than the state

average at approximately 37%. Approximately 12% of students in this rural secondary school are eligible for special education services. This is slightly lower than the state average of almost 15%. There is an identified ELL population of 1%; the state average is 7.7%. Median home prices in the area in 2009 were \$173,736; the state median was higher at \$227,649. This data was obtained through the Minnesota Department of Education. According to usa.com, the median income for the rural community from 2006-2010 was approximately \$54,000. The rural district comprises over 130 square miles, and services a population of approximately 1400 people.

The rural district employs less than 30 secondary teachers, including three mathematics teachers and five special education teachers. The mathematics curriculum is a traditional scope and sequence of Quadratic Algebra, Geometry, and Algebra II, with elective math options for seniors, including Pre-Calculus, Statistics and an applied math that focuses math for daily living. The school also offers remediation courses for students who were not proficient on the Minnesota Comprehensive Assessment in the area of mathematics. Finally, there are three levels of resource math, as well as mathematics groups geared toward students with cognitive disabilities and those with Emotional/Behavior Disorders.

Suburban case.

Description.

Suburban high school is a first ring suburb of a major metropolitan area in the state of Minnesota. The high school is comprised of ninth through 12th grade students, and houses more than 2300 students. The ethnic make-up of the

Suburban district is 90% white. This is significantly higher than the state average of 7%. Approximately 7% of the students are qualified for free and reduced lunch. This is significantly lower than the state average at approximately 37%. Approximately 10% of students in this Suburban secondary school are eligible for special education. This is slightly lower than the state average of almost 15%. There is an identified ELL population of less than 1%; the state average is 7.7%. Average home values in the area in 2009 were between \$475,000 and \$500,000; the state median was lower, at \$227,649. This data was available through the Minnesota Department of Education website. According to usa.com, the median income for the suburban community from 2006-2010 was approximately \$100,000. The Suburban district comprises of over 22 square miles and services a population of approximately 40,000 people.

The suburban district employs close to 150 secondary teachers, including 21 Mathematics Teachers and 19 special education teachers. The mathematics curriculum is a traditional scope and sequence of Quadratic Algebra, Geometry, and Advanced Algebra. Suburban High School also offers a variety of advance placement mathematics courses, accelerated mathematic courses and International Baccalaureate mathematics courses. The school also offers a remediation course for students who were not proficient on the Minnesota Comprehensive Assessment in the area of mathematics. Finally, there are three levels of resource math, as well as mathematics groups geared toward students with cognitive disabilities and those with EBD.

Urban case.

Description.

Urban high school is located in a major metropolitan area of Minnesota. The high school is comprised of eighth through 12th grade students. The building houses between 1400 and 1700 students. The ethnic make-up of the Urban district is 7% white. This is also the state average. Approximately 90% of the students are qualified for free and reduced lunch at Urban High School. This is significantly higher than the state average of 37%. Close to 20% of students in this urban secondary school are eligible for special education. This is slightly higher than the state average of almost 15%. There is an identified ELL population of 60%; the state average is 7.7%. Average home values in the area in 2009 were between \$2250, 000 and \$250,000; the state median was similar, at \$227,649. This data was available through the Minnesota Department of Education website. According to usa.com, the median income for the Urban community from 2006-2010 was approximately \$45,000. The Urban district comprises over 52 square miles and services a population of approximately 285,000 people.

The urban high school employs close to 100 secondary teachers, including 22 mathematics teachers and 8 special education teachers. The mathematics curriculum is a traditional scope and sequence of Quadratic Algebra, Geometry, and Advanced Algebra. The urban high school also offers accelerated courses, Trigonometry and Algebra III, which is also a college level math course. The school also offers math labs to ninth and 10th graders as a way to provide supplemental mathematics support. Finally, there are a few resource

math classes that are geared toward students with cognitive disabilities and those with Emotional/Behavior Disorders.

Interview Results

Rural.

Administrator.

According to the rural administrator, the placement process is a team decision. The expectation of administration is that a general education teacher should attend IEP meetings, unless otherwise scheduled. If mathematics teachers are unable to attend, written input regarding classroom observations, student progress and suggestions should be submitted to the case manager prior to the meeting. The administration (principal, assistant principal and special education director) may provide input regarding placement if necessary. According to the administrator at the rural district, they don't have a lot of students who attend their IEP meetings. Final placement is generally a consensus. The administrator indicated IEP teams have always been able to come to an agreement regarding mathematics placement of high school students with a high incidence disability. The placement is fluid; re-evaluating decisions is always an option. There are no set placement process guidelines. Each decision is made on an individual basis.

Each member of the IEP team has influence over the placement process. The administrator usually has some input based on what he observes in the lunchroom and hallways. As a former mathematics teacher, he is also able to give input on math discussions. The majority of the time, he listens and offers

minor suggestions and defers to the recommendations of the mathematics teacher and case manager. The mathematics teacher reports on student progress in class and offers suggestions that may be helpful in class. The mathematics teachers also provide recommendations based on course offerings and experiences. Finally, the mathematics teachers utilize accommodations within the classrooms to try to make things work as much as they can. Case managers make recommendations, along with mathematics teachers and administrators regarding where math instruction should occur.

Parent concern can be a factor in making mathematics placement decisions. Though, the administrator indicated parent demand does not necessarily equal a change in placement; but it can aid in discussions. Historically, parents have been supportive of the school and recommendations. There have not been a lot of problems or arguments. According to the administrator, the math teachers do a pretty good job of communicating and mathematics teachers and case managers have re-evaluated placements mid-year because a placement was not a good fit. The rural high school does not have a lot of students attend their IEP meetings. Though, student input is gathered by the case manager to determine how they are feeling and to gauge what's happening in their classes.

Other factors also influence placement decisions. Prior academic successes in math, struggles, Minnesota Comprehensive Assessment in mathematics (MCA) data, classroom data and results of progress monitoring all play a role in where a student receives mathematics instruction. If a student has

a deficiency in math, the administrator believes the placement decision is generally more straightforward. Student grades and effort also play a role: attitude and class performance, the intangibles, can influence placement decisions. The MCA plays a minor role. The administrator recognizes the importance of the MCA, but is more concerned with how a student is performing and progressing.

According to the administrator, course options and the master schedule have an enormous impact on mathematics placement. There are only three mathematics teachers for all students, grades seven through 12; the small staff means very limited course offerings. Students are in one of two main stream math tracks-regular or high math, or they are in a special education mathematics class. There are approximately 20 students out of approximately 240 high school students in the two resource math classes. The rural school district has considered adding “concept” type classes, but determined scheduling would be major issues. Getting students who needed the class into a specific hour and still making the rest of their day work would not be feasible. The school also offers an MCA remediation course, Technical Math, Statistics and Pre-Calculus for students who wish to take a fourth year of math.

In an effort to support students in mathematics, the rural high school offers tutoring one day per week after school. Some National Honors Society students provide tutoring, as well. Mathematics teachers are available for help before and after school. Both the general education and special education math classes use progress monitoring as a way to measure student progress. The mathematics

teachers allow students to re-quiz and re-test for passing scores (after they remediate). Special education students receive accommodations and modifications in the general education classrooms, including modified assignments, testing accommodations, modified tests, testing in the resource room, and modified timelines. Paraprofessional support is offered in some of the mathematics classrooms and on an individual basis to specific students. Students with disabilities may also have scheduled, structured study skills to provide additional mathematics support.

Mathematics Teacher.

The mathematics teacher reports she has little to no knowledge regarding the mathematics placement process of high school students with a high incidence disability. The mathematics teacher feels she is an active participant at meetings, providing input on the student's progress in class and accommodations and modifications regularly provided. But, she reports she has not been a part of any conversation regarding whether a student should be mainstreamed or placed in a resource setting. Her feeling is that by time students reach high school, the decision has already been made...they are either in a special education mathematic class or mainstreamed with accommodations that come with them. She reports she does not see many students go from a special education mathematics class into mainstream mathematics classes, once that decision has been made. If a student was pulled into a special education mathematics class in elementary school, they tend to stay there. The high school math department is not part of the conversation in the younger grades. The

mathematics teacher indicated she would be interested in being a part of the placement process, to see how a decision is made whether students stay in a mainstream class or move to a special education mathematics setting. There is a new process in place this school year for referring struggling students: Student Assistance Team (SAT). The team assists classroom teachers with developing modifications and accommodations. The mathematics teacher reports she is unsure about what happens if the interventions are not successful.

The mathematics teacher reports current practice includes meeting with the special education department once per year during the IEP meeting. At that point, the mathematics teacher reports on student progress, accommodations provided within the classroom and what students are currently working on. Sometimes, the mathematics teacher feels students are misplaced in her mathematics classroom. In these instances, she contacts the special education department directly. Some students may receive special education services or some may have been previously evaluated and did not qualify for services. Some students have had multiple years in which they did not earn mathematics credit (ex. seventh and eighth grade) in mathematics, indicating students would not have the pre-requisite skills to be successful in a ninth grade mathematics course. The scope and sequence of the mathematics offerings drive student placement. Though, students that were not successful in middle school mathematics are still pushed to take the next level of mathematics once they reach high school-Algebra I. It is not standard practice to have students' re-take

seventh or eighth grade mathematics as an upper classman. In this instance, students can feel misplaced.

Special education teachers are not regularly in general education classrooms, which may make placement decisions difficult. Because the mathematics teacher has little to no knowledge about the placement process or influences, she has made the assumption that course options may be a barrier in making placement decisions. Current mathematics course options at the rural high school include: Algebra I, Geometry, Algebra II, and MCA remediation course, Technical Math, Statistics, and Pre-Calculus. Mathematics teachers are available before and after school for support. The mathematics teacher provides on-line support through offering completed homework solutions as a resource to Parents and students. Private tutoring is available in the community. Students have the opportunity to re-test and/or re-quiz for higher passing grades. Students with disabilities are placed in the general course of study and may receive assignment modifications, grade adjustments and/or testing accommodations. Students with IEP's may also have paraprofessional support within the classroom. Some students with IEP's receive additional support through a study skills class.

Both the special education teachers and the mathematics teacher are "young." The mathematics teacher reports she has been a teacher at the rural high school for three years. Rural high school is also her first teaching job, so she feels she has no frame of reference to compare her experiences. The rural

mathematics teacher also reports the special education teachers and staff have changed yearly, as well.

Case Manager.

The placement process is a team decision. Though, the case manager reports he has the most influence. Team members rely on the student's previous placement and case manager for information. The expectation is a general education teacher will attend and participate, but in a small school this can be difficult because of coaching and other duties. Mathematics teacher input is valued when the student receives instruction in a general education mathematics classroom. When the student is placed in a resource mathematics course, the special education mathematics teacher plays a role. Parents generally attend IEP and placement meetings and participate, but are really only concerned if their child is failing or struggling. Parents are supportive of transitions and life skills math curriculums. According to the rural case manager, initial referrals should go through pre-referral interventions, though that is not necessarily the case. Test results from an initial evaluation will play a role in the placement discussion. There is open communication between mainstream teachers, the case manager administrators and parents, though much of that decision falls to the case manager. Parents push for change when the student is struggling. The case manager feels in many instances, the decision is pretty cut and dry. For example, if a student fails Algebra I two different times, the decision to make a placement change is easy.

There are many considerations related to mathematics placement decisions. The team considers previous year's performance, evaluation information, and classroom work samples. A student's level of service and service minutes may also impact placement. Because this is a five through twelve building, student performance in the sixth grade can impact future placement. If a student struggles in sixth, seventh and eighth grade, the case manager feels it is likely they will continue to struggle in high school mathematics. The case manager makes an effort to balance transition needs and what's important for future independence, with meeting state standards and generally leans more towards a life skills mathematics curriculum. The master schedule can impact placement when trying to build in mathematics instruction around meeting core graduation requirements.

The rural high school offers a traditional mathematics course progression: Algebra I, Geometry, and Algebra II. Senior mathematics course offerings include Technical Math and an MCA remediation course, as well as pre-calculus. Additional supports are available through teachers help before and after school or tutoring. All students may access on-line courses through the Alternative Learning Program, though the case manager does not advocate for this option because students with high incidence disabilities are not generally independent enough to be successful in that environment. Students with disabilities may have paraprofessional support in their mathematics class for behavior or academic support. Some students may receive additional services through their study skills

class. There are also resource mathematics classes available to address student's mathematics needs.

The rural case manager feels there are a high percentage of students in resource mathematics. He generally does not feel pressured to make certain math placement decisions, though he speculates that if students were really pushed into the mainstream, there may be a little more push back from parents, students and mathematics teachers. There is not a lot of movement from special education mathematics classes to general education mathematics classes. According to the case manager, once they have been pulled out of mainstream mathematics classes, it's difficult to get them back in. The state standards play a minor role in making mathematics placement decisions. Occasionally, the case manager "throws the standards out the window". His philosophy is to focus on the more practical-what the student needs to be independent. He indicated he has the support of the administration and Parents.

Parent.

The rural parent explained the family is new to special education. The father indicated he does not know the total extent to which IEP goals and objectives are based on input from the team meeting and he is not sure whether his son has a mathematics goal on his IEP. The father reports there has not been any problems in the referral and testing process, other than it took longer than the family wanted, especially since they had already had done outside testing. The father indicated there is a lot of information out there about the special education process and that he doesn't know, and perhaps he is not asking the

right questions. He also indicated the special education process is “learning for the Parents.” He suggested it would be helpful to provide more information to parents ahead of time so they (the family) could process ahead of time. He reported his wife is a teacher, so that does provide an advantage. The rural father is not sure what influences mathematics placement decisions. He does know it has been discussed, but the team has decided to leave the student in his general education classroom with his peers while getting additional support from his teacher. At this time, the student has been able to pass at 60% when he turns in his work, but he is not testing well or retaining information. He is really struggling with mathematics right now, earning 40%. Mathematics is the student’s most difficult class because he has trouble staying organized and on task, which can make multi-step problems more difficult. The family would like to see the student earn a passing grade, allowing him to move on to the next level of mathematics. At this point, they do not know if other mathematics options are available”...a lower class; a slower class” the student could participate in. Again, the father indicated they are not trying to push the mathematics option issue at this time, but they are getting close to exploring options. They would prefer to “manipulate” their son and allow him to develop the tools to work with his peers and make him responsible for himself. The father was very clear in that the family was not trying to “get” his son anything he didn’t need.

The team worked together in the placement process. The father has attended all meetings; the mother has been able to attend most. “If the team meets...I’ll be there. It’s about my son.” According to the father, school

administrators have been actively involved, as has the mathematics teacher. The father stays in regular contact with the mathematics teacher and feels she always knows where his son is at. She has been “superb.” The student was not an eager participant in the process. According to the father, the student is maturing, is not being teased, understands the need for additional support, and is regularly getting homework completed.

The rural parent believes state standards and state testing play a role in what his son should know and be able to do. The father feels state standardized tests are teaching students how to pass a test; not mathematics. “I think they’re wrong.” The father also believes students are not learning what they need to know: adding, subtracting, multiplying and dividing. His philosophy is such that if you can do that, you will be able to work out any type of word problem. He expressed concern about course options in science such that if his child is struggling with mathematics, it would not be appropriate to place him in chemistry or physics, even though the courses are part of graduation requirements. The parent reported “course options are going to [play] a big role in the next few years.” The parent believes schools are pushing mathematics concepts forward too fast. He reports, perhaps, if extra time (weeks/months) were available, all students may have the opportunity to learn. He supports the idea that teachers should teach kids as much knowledge as they can. Students should be taught what they need to know to live life.

Student.

The student reported he attended one meeting in which service options were discussed. The student was included in the discussion regarding direct support through a special education study hall option. The parents and a couple of teachers were at the meeting. According to the student, an administrator (principal or vice principal) and the mathematics teacher were not in attendance, though the student indicated the mathematics teacher was a driving force in encouraging additional supports and services through special education. The student was appreciative of the mathematics teachers concern. She was aware of his struggles and wanted him to get additional help in mathematics.

The high school student was not initially in favor of receiving additional support through special education. The student believed mathematics was one of the main reasons he has begun receiving special education supports and services. The student has remained in his mainstream Geometry course with his peers. He receives accommodations and modifications within the classroom. The student also receives additional support through a study skills class where he can work on homework and get mathematics help. The student reported he also needs to put in more effort and ask questions. The student reports he does not know what his IEP goals are. He also reports he does not know what the team looked at or took into consideration when making his math placement decision, though probably how he did in the past and what might happen in the future.

Suburban.

Administration.

The process for making mathematics placement decisions is based on team input. The administration expects general education teachers to be present at meetings and to report on student progress within the classroom. Making placement decisions and change of placement decisions requires an IEP team meeting. Options regarding moving students up or down a level, moving them to a different general education class or pulling them into a special education class are discussed. Again, placement decisions are a team decision, though the case manager has quite a bit of weight in the decision.

Data, the state standards and the MCA also play a role in making placement decisions. The team reviews special education assessment information. This data helps shed some light on a student's ability. The team also gather's input from the classroom teacher, special education teacher and the counselors regarding the students progress in class and whether they are struggling at the appropriate level. Previous MCA data is examined. Student need is more of a driving force than meeting state standards or passing the MCA. The MCA plays a minor part in the decision making process. According to the administrator, "we're not going to put a student in a class simply for a state mandate unless it's appropriate." The larger concern is meeting students IEP goals. Other considerations may come in to play when reviewing student data. If data is not supporting a specific placement, student performance can generally be attributed to behavior or social concerns. Students may be experiencing issues with the teacher or within the social situation.

The IEP team plays a significant role in making math placement decisions for high school students with high incidence disabilities. Administrators regularly attend meetings, but their level of participation varies, depending on the student. The administrators frequently defer to case managers and mathematics teachers because they are the staff that regularly sees the students in class. They also have more insight regarding the assessment information. According to the administrator, the case manager has quite a bit of weight in the placement process. Mathematics teachers also have input in the placement process, as they can provide information regarding student progress in class, as well as information regarding curriculum, scope and sequence. Counselors also contribute to the placement discussion because they have a more broad view or general view of available options to provide to the students. The parents express their concerns, but generally rely on the expertise of school personnel. Occasionally there is pressure from a parent regarding making a specific placement decisions. Students also participate in the placement process. They are a pretty good gauge of how things are going in their classes and whether they are feeling overwhelmed.

Course options, level of special education support and supplemental supports and services also plays a role in making placement decisions. There are a wide range of general education courses available at Suburban High School. Unfortunately, the master schedule, course availability, available resources and/or graduation requirements may impact where students receive mathematics instruction. This does create some gaps for students with

disabilities and meeting individual student needs, and determining whether to push students up or down. When students are on an IEP, there is more flexibility regarding graduation requirements, though sometimes students have to fit the mold a little bit. The school also offers “covered” classes, or inclusion classes, where there is a special education teacher or paraprofessional within the general classroom. Mathematics teachers are available daily during all student lunches to provide supplemental support; the master schedule is also designed to allow teachers time to work with students four days a week from 7:00 a.m. to 8:00 a.m. According to the administrator, families in the community regularly access outside tutoring. Another option may be for students to receive mathematics instruction within the general education classroom at their developmental level and not necessarily at “grade” level. For example a typical performing student would take quadratic algebra in the ninth grade; a student that has struggled with math may not take quadratic algebra until 10th or 11th grade. When students transition from the middle school, they generally follow the scope and sequence of the path they are currently on.

Students with disabilities may also receive support through the resource room and their case manager. Students can access the resource room, either before school or during class time, for more one-on-one support. There are resource mathematics classes available to students with IEP’s. A small population of students receives mathematics instruction in this environment. Instruction within these courses is generally limited to those with cognitive disabilities, behavior or social concerns or more severe mathematics disabilities.

The content of these courses varies, based on student need. There are alternative learning environments for both general education and special education students. These alternative environments offer students individualized instruction and course work based on student need. When making placement decisions, the administrator believes it is important that the team starts with providing needed assistance by facilitating time to meet with the teachers or case managers; the last option would be moving the student, if appropriate.

Mathematics Teacher.

The placement process is facilitated by the case manager. Discussions occur among the case manager, the mathematics teacher, counselors, the family and the student. According to the mathematics teacher, mathematics placement is heavily influenced by the “track” students have previously been on and where they come in at the high school. Conversations among the team members provide an opportunity for the team to get everybody on the same page. The mathematics teacher indicated he tends to take a more active role in the placement process when those students with an IEP want to take the advanced track of mathematics. Disagreements may occur when a student wants to take the more advanced track, but the teacher feels the student isn’t ready for the advanced course. The mathematics teachers make recommendations to students regarding where mathematics instruction should occur. The mathematics teacher believes team influences regarding placement are a combination of the teacher, the case manager, the counselor, and the family.

Student input plays a significant role in the placement process. Students have the opportunity to self-select their math courses. Mathematics teachers make recommendations and ask students to have a conversation with their Parents. Occasionally, there is disagreement between the parent/family and the mathematics teacher. There is conversation with the case manager, to make sure course choices are a right fit. There are ongoing conversations between mathematics teachers, counselors and case managers; mathematics teachers have more discretion regarding where math instruction will occur.

There are a variety of special education service delivery models at the suburban high school. A majority of students receive mathematics instruction in a general education setting, with additional supports and services, including classroom modifications and accommodations. The mathematics teacher looks to provide remediation during work time within the classroom. Some students will have access to paraprofessional support, though paraprofessional support is generally geared toward behavioral need versus academic need. Students with IEP's may have supplemental support through their study skills course. Some students participate in the general education curriculum, but are a year or more behind their peers in course work. Teachers are available for support both before and after school. Mathematics teachers are available for tutoring daily during lunches. Peer tutors are available to students one day/week before school when teachers are scheduled in their weekly meetings. The mathematics teacher uses an on line learning management system to support students by posting course notes, offering practice quizzes, and videos to supplement instruction. There are

a variety of mathematics course options to address student's academic needs. There is both a "regular" track and an "advanced" track of course work, beginning with Linear Algebra, which addresses eighth grade mathematics standards, through Calculus and Functions, Statistics and Trigonometry. An MCA mathematics remediation course is available to students who need additional support to pass the state mathematics test. There is also some variety in course presentation/format, including "flipped" classrooms and I-Pad mathematics courses. There are a few resource mathematics courses for students with more significant mathematics needs. The mathematics teacher has indicated mathematics placement is less of a discussion and more a matter of progression through the scope and sequence of the curriculum.

Case Manager.

Mathematics IEP goals and objectives are developed from IEP team member input. The case manager regularly consults with the mathematics teachers. Administration expects teachers to attend IEP meetings and the master scheduled is set up to support teacher attendance. If teachers are unable to attend, they do send a written input to the case manager to report at the meeting. Case managers are the facilitators. They help ensure teachers, students and parents are active participants. Placement decisions are generally based on a team consensus regarding the best placement. Discussions occur regarding the advantages and disadvantages of specific placements.

Each team member is influential in making mathematics placements decisions. Students have the opportunity to self-select their mathematics course.

Mathematics teachers make broad-spectrum recommendations, but students have the opportunity to self-select mathematics courses within the scope and sequence of the curriculum. Case managers will consult with mathematics teachers regarding appropriateness of classes. Mathematics teachers report on student progress and school counselors will look over student schedules, but the case manager ultimately makes the final decision. Parents have input in the placement process. They also report on the student's progress at home, including whether they are working independently or how much family support they receive. Generally, parents defer to the mathematics teacher and the case manager. Parents are receptive of the professional opinions of the school personnel. Administrators also tend to defer special education case managers and mathematics teachers regarding mathematics placement decisions.

Data has a role in the placement decision process. Case managers and mathematics teachers look at how students perform previously and the level of mastery achieved. Case managers and mathematics teachers look at whether students have mastered the essential skills necessary to be successful at the next level of math. Both mathematics teachers and case managers will also consider MCA scores when looking at placement.

Course options and service delivery options play a role in the mathematics placement process. The case manager reports there are limited offerings to support struggling learners and many of the available course options are driven by the high achieving students. There is concern about meeting student's academic needs.

According to the case manager, there is much discussion at the high school regarding mathematics and addressing the needs of those that struggle. The case manager recognizes the need to raise expectations for all students, but is concerned that it is only possible to differentiate over a certain range of ability and achievement. Mathematics teachers are struggling to support all students within their classrooms. This suburban high school offers a traditional scope and sequence of mathematics, beginning with quadratic algebra. Linear Algebra is available, though it does not address high school mathematics standards. There are three levels of resource mathematics courses below Linear Algebra, but placement within these courses is rare...and is generally limited to those students that were on the track coming over from the middle school. There is also an EBD mathematics, which generally addresses grade level academic standards, but is taught in a separate classroom/setting to support the behavior needs of the students. Some students with IEP's participate in an Alternative Learning Center (ALC) type mathematics course, but again, this is more of the exception than the norm. Most students receive mathematics support within the regular classroom, with accommodations and modifications or in a "push-in" class with a special education teacher. Some students have access to paraprofessional support, but generally the support is related to behavior, not academics. Many students also receive mathematics support in their study skills class. The level of support provided during study skills is often dependant on the teacher's level of mathematics expertise. The study skills course has a separate curriculum component, as well as the option to work on any course content.

The high school offers mathematics support to all students during their lunch period. Peer tutors are available before school one day per week. Teachers are scheduled to be available to all students four out of five days per week before school, including the resource room teachers. The case manager reports many students that struggle are not self directed and have self-esteem issues. Many students do not access available resources independently; or are intimidated when they do access the available resources because other students are present. The mathematics department has begun offering “flipped” classrooms in which instruction is provided via video; homework assigned is watching the video and complete a few practice problems. The case manager reports students with high incidence disabilities are struggling with this model because they are not getting enough guided practice and teacher feedback. Many students are accessing outside, or private tutoring to supplement mathematics needs. The school is in a district where families can do that...”they can afford to pay for tutors.”

The master schedule, graduation requirements and community perception also influence the decision making process. Students are required to have a certain number and type of credit to graduate. This suburban high school is considered a college preparation school, so many of the course offerings are geared toward the higher achieving students. The culture of the community and the school board is such that all students are academically above average. This creates problems for students that do not perform academically above average.

Parent.

The process for making mathematics placement decisions is facilitated by case managers. Case managers collect data from a variety of sources, including information reported by general education mathematics teachers. The parent believes there is an abundance of information collected, but perhaps all data and information is not shared with the families, nor is the actual decision making process. The Parent suspects this may be due to time restraints. The student and parent are asked to provide input regarding placement, as well as IEP goals and objectives. The case manager makes a recommendation to the parent regarding placement. The parent feels she is currently an active participant in the development of IEP goals and objectives, but this has not always been the case. The parent currently relies on the advice of the case manager regarding where mathematics instruction should occur. Though, the parent doesn't always believe her child's needs are being met within the environment in which he receives services.

There are many pieces that come into play during the placement process, including people, data and other intangibles, range of services and course options available, and policy issues; all of which may lead to frustration and dissatisfaction at the "system" of special education. People play a role in making mathematics placement decisions, including case managers, general education mathematics teachers, administrators, the student and the parent. The case manager facilitates the placement process, collecting information/data to report at the IEP meeting. According to the parent, case managers do a great job of supporting her child and keeping her involved in the IEP and placement process,

though the parent has indicated she has not been as active as she would like. These feelings appear to be associated with a lack of knowledge of special education. Prior to her position as a special education teacher, the parent indicated she was ill-prepared for special education. She has reported she would leave the decision making process to the case managers because “the teachers know what they are doing.” She indicated she was encouraged to participate by many of her child’s teachers, but felt she did not know *how* to participate even though she had a family background in education. Her child’s case managers encouraged her to be an active participant in the special education process. The Parent assumed a large role in the placement process. She does not feel she was an advocate for her son in all ways possible. Mathematics teachers play a direct role in the placement process, making recommendations based on student’s current skills and abilities, though the parent reports mathematics teachers have not attended IEP meetings in the last few years. Written input regarding current grades was provided via e-mail, and support staff within the mathematics classrooms report on the student’s math skills. The parent has reported that historically, the administration has played an indirect role in the placement process via course offerings within the buildings. The parent has seen administrators do attend IEP meetings, though input is routinely limited to discussion about behavior. Because the student is not a behavior concern, administrators are generally unfamiliar with this particular student. One interaction with an administrator earlier in her son’s special education career has created an “icky” memory in which the parent felt her contribution to the process

was discounted. A suggestion brought forward was “shot down right away.” This response from the administrator created shock and anger for the parent.

According to the parent, data and intangibles (student work ethic, advocacy and behavior) also play a role in the placement process. Current grades and standings are taken into consideration. Current and previous mathematics placement, as well as performance in previous placements contributes to the decision making process. Data derived from the special education evaluation contribute to the placement decisions. Attitude also plays “a big part”. The parent believes the data collected could be more specific, including student performance as it relates to state academic standards. The MCA, state standards and graduation requirements also impact the placement process. Course options are limited based on the need to meet state graduation standards and mathematics content standards.

Service delivery options, course options and additional special education supports and services impact the placement process. This suburban high school has a range of special education services, including modifications and accommodations within the general education classrooms, general education classrooms with additional adults to provide special education supports, ALC courses with both a general and special education teacher, that are open to general education and special education students, and resource classrooms. According to the parent, the availability of additional support was a key in the placement decision making process. Students also have additional support available through a scheduled study skills class. Though, the level of support

available could vary based on teacher level of mathematics expertise, as well as time available to support all students within the classroom. The parent obtained private tutoring to support her child outside of the regular school day. She reports she wished there would have been more alternatives, either class options, or additional support, available for her child. The parent reported she felt his mathematics placement was a product of availability of course offerings and fitting her child within the pre-determined courses versus providing a service delivery option that best met his mathematics learning needs: “Okay. This is what you got, so we’ll fit you into that slot.”

The parent has indicated the modifications provided to support her child in a general education setting have been the source of conflict between the student and his mathematics teachers. Accommodations allow for a quiet place for testing, extended time for testing and the option to have the test read aloud. Mathematics teachers have accused the student of cheating due to scores received on tests. According to the parent, the student does not feel comfortable accessing the mathematics teacher for support because there is not that level of mutual trust and the student feels the teachers may look upon him with a negative perspective. This cycle of mistrust between the student and mathematics teacher impacts the ability to get and receive additional support.

Student.

The IEP team plays a significant role in the mathematics placement. The special education case manager participates a “huge bunch” in the IEP and placement process. The student is very active in the planning and decision

making process. He reports out to his team about how his learning is going, what he's struggling with and what is going well. The student indicated his level of involvement has evolved from his freshmen year when his team would tell him what he needed to work on, to his senior year when he is able to articulate his needs. He can share his goals and the team helps him determine what he needs to do to reach his goal. According to the student, the team doesn't necessarily always agree with the student's suggestions and will suggest things the student can do to better his learning experience. The student indicated the team and more specifically, the case manager have much experience and so he does defer to them to make final decision. Mathematics teachers and administrators play a minor role in the process. Administrators are present at meetings and do participate. Generally, involvement includes approval of ideas and/or suggestions from the case manager or to provide alternate suggestions. According to the student, mathematics teacher involvement has been limited in that they don't always participate; and if they do, they don't suggest helpful ways the student can learn. The student reports he has received "bad" news in the past from his mathematics teachers, though this year it was good news. In the past, the student has been in general education mathematics classes that also had a special education teacher or paraprofessional within the classroom; this is generally the person who has attended and reported math progress. The student also indicated his parents are active members of his IEP team when making IEP goals and placement decisions.

The student reports data, course offerings and level of support, and state standards and testing play a role in where he receives mathematics instruction. According to the student, he believes his grades and data probably play a role in where he receives mathematics instruction, though he did not clarify what “data” means. The suburban school offers a range of mathematics courses, including lower classes that are general education (pre-algebra), general classes, and higher classes. There is also an MCA review/prep class available to juniors and seniors. This class is geared toward passing the MCA. The student also indicated state standards and the MCA are playing a role in where he receives mathematics instruction. His goal is to pass the MCA math test, so currently the student is taking the MCA class, as well as Geometry.

The scope and sequence of the students math programming was modified to promote success on the MCA. The traditional route would include taking Quadratic Algebra in ninth grade, Geometry in 10th grade, then Advanced Algebra in 11th grade. This student took Linear Algebra as a ninth grader, so his programming included Quadratic Algebra in 10th grade, Advanced Algebra in 11th grade and now Geometry in grade 12. In addition, the student is also taking the MCA review course in preparation for the MCA re-test. The MCA is more heavily weighted toward Algebra, which is why the team made the decision to place the student in Advanced Algebra in 11th grade. In the past, the student received special education support within his general education classroom with a special education professional. The student reports he was more comfortable and more successful when asking for help from the special education teacher than the

mathematics teachers. The student indicated he felt he gets forgotten easily, the mathematics teachers aren't very helpful, because often he didn't understand what he should do. This year, the student receives support only through his study skills class, the resource room, and his case manager. The student receives the one-to-one support and attention necessary for his success and feels the special education staff can explain things to him in a way that he can understand. The student also indicated he receives testing accommodations, including reading tests aloud. The student also reported there are separate special education math classes in his school, but he felt his skills were better represented in a general education classroom.

Urban case.

Administration.

Special education case managers facilitate the discussion regarding the mathematics placement process. Decisions regarding placement are impacted by people, data, federal, state, and school policies and educational philosophies that have a direct influence on course options and special education service delivery models. The case manager elicits the support of the IEP team, including a general education teacher that has the knowledge of the student's skills and abilities, as well as the data regarding student performance. Specific data could include academic history, Measures of Academic Progress (MAPS) scores, MCA scores, and special education assessment data. Data also includes "intangible factors", such as work ethic and behavior.

The educational philosophy of the head principal plays the most significant role in mathematics placement. According to the administrators interviewed, there really is no “decision” to be made. The principal’s push-in view is one that all students should be a part of the general education curriculum, including mathematics. Students with disabilities follow the same progression of math courses as their non-disabled peers. Direct support is provided within the regular classroom through accommodations and modifications of the general curriculum. Some students receive the support of a special education teacher through a co-taught model. Supplemental supports and services may be provided through re-teaching or pre-teaching in a studies skills class. Students that will graduate on a transition IEP *may* be eligible to participate in a vocational program or alternative graduation requirements. Educational assistants provide behavior support in the classrooms. Interdisciplinary teams provide an avenue for all teachers to discuss struggling students, even those with disabilities. The school provides extended day programs in mathematics that are open to students with and without disabilities; and mathematics tutors are available during the school day and after school to provide additional mathematics supports. The building’s vision is that of high academic expectations for all students. The administration within this building believes state standards and assessments are driving course options, as well as the desire to educate the majority of students in a general education classroom.

Mathematics Teacher.

Making placement decisions is a process that begins with the IEP team, including parents, the case manager, mathematics teacher, the student, and administration. All members are asked to contribute to the process, though mathematics teachers may not always be able to attend in person. Written input is provided by the mathematics teacher, but then limits the opportunity to contribute and communicate with the families. Mathematics teachers share information regarding student progress in their class, but do not feel they play a role in making mathematics placement decisions and have not participated in making that final placement decision. The case manager's role is significant in the placement process.

People, policy, data and course options influence the placement process. General education teachers, including mathematics teachers are expected to attend and contribute at IEP meetings. Individual teacher schedules can play a role in the teacher's ability to attend. Though a written report is provided, mathematics teachers may not feel the written report is adequate in reporting student progress and needs within the classroom because they cannot put in their full input nor have conversations with parents. Mathematics teachers also indicate a desire to have more communication with case managers regarding student progress within the classroom. Mathematics teachers feel because case managers aren't always with their students in the mathematics classroom, they don't have a full understanding of the student's progress, needs, skills and abilities. Mathematics teachers do attend IEPs and make verbal and written reports, but do not know what gets done with the information or whether there is

much movement. The mathematics teacher reports parents do attend IEP meetings; though, they do not feel parents always have the background knowledge to understand what courses and content are available to their students. Finally, mathematics teachers believe case managers, counselors, parents and administration play the most significant role in placement decisions.

Local state and federal policy play a role in placement. State standards and district and state graduation requirements play a role in where students receive math instruction. Graduation credits are perceived as a barrier for receiving mathematics instruction. Mathematics teachers feel this may result in pushing kids through versus providing what students need at the level they need, which also impacts course options and service delivery models for special education services. According to the mathematics teacher, this urban school does not offer resource mathematics classes. All students are placed in general education mathematics courses based upon their grade level and follow the scope and sequence of the curriculum. According to the mathematics teacher, differentiation occurs within the classroom as a way to support all learners. Supplemental supports and special education services are also provided within the general education classroom through adaptations and modifications or a co-taught class that includes a special education teacher. Some students also receive additional support in a study skills class that is not mathematics specific. Students with a disability may have the option in 11th and 12th grade to participate in a transition based program that would allow them to vary from the core curriculum. MAPS data is used to determine whether a student is placed into an

extended day mathematics course after school and is not a part of special education service minutes. Grades and previous MCA data are examined. Course options play the most significant role in where students receive mathematics instruction.

Case Manager.

Making placement decisions is a process that begins with the IEP team, including parents, the case manager, mathematics teacher, the student, and administration. The case manager acts as facilitator, bringing together the family, student, administration and general education teacher. All members are asked to contribute to the process. The case manager contacts general education teacher's via e-mail to solicit information regarding the student's progress in class. Mathematics teachers may not always be able to attend in person so written input is provided to the case manager. The case managers asks that teachers provide specific examples and work samples for parents to allow the teachers to be active participants, as well as increase understanding for the parents as they may not be familiar with the types of mathematics being taught/learned.

The case manager assumes primary responsibility for making placement decisions, but will elicit input from the team if necessary. The case manager accesses student data, including current grades, academic history, MCA and MAPS scores to assist in the decision making process. According to the case manager, the desire would be to reach consensus among all members of the team when making placement decisions. If parents are not satisfied or

mainstream mathematics teachers feel the current placement isn't appropriate, the case manager works to explore other available options for the student and try to come to an agreement. The case manager plays the most significant personal role in making placement decisions

Building policy and course options play an important role in the placement process. The high school operates from an inclusion model in that all students, including those with disabilities, are on the general education math track. This inclusion philosophy is unique to this particular urban high school. According to the case manager, there are no placement options. Accommodations and modifications are provided in a general education classroom, via the standard math track (Algebra, Geometry, or Advanced Algebra). Some students with disabilities may receive service minutes in mathematics if they are a part of the co-taught classroom, where there are both a general and special education teacher present. Students may also receive special education mathematics support through their study skills class. The study skills courses are not mathematics specific. Educational assistant support is available within the general education classroom, though the support provided is generally limited to behavior, not academic support. Students that demonstrate a pattern of failure (multiple, consecutive years of failure) may have the option of taking a resource essential math course in 11th-12th grade. Supplemental math courses are available to all students after school. Tutoring is also available to all students during the school day or after school, upon request by the student or mathematics staff. This supplemental support is not part of the special education

supports and services. MCA data and MAPS data are discussed, but course option or perceived lack of course options, play heavily into the placement process

Parent.

The urban parent reports she is unfamiliar with the mathematics placement process, though she has been an active participant in multiple children's IEP's and education. She does not feel she is an active participant in the placement process, and the placement for her son has been pre-determined. The parent has felt the school has sent a message that they are "doing it right" and that she should "calm down". The parent also indicates administrators have had little to no input in the decision making process and the case manager drives her child's education, as well as the usefulness of the IEP and IEP team meetings. The parent reports she believes her son's mathematics instruction is not directly related to his skills and abilities; his level, competencies or abilities and background. He is discrepant in his math skills and his needs aren't being met, but his placement, lack of course options and level of instruction are a manifestation of NCLB, and state academic standards. The parent believes mathematics placement is directly related to the federal and state regulations, as well as the policies of the school.

The parent was visibly upset over some of her experiences throughout her son's tenure in special education. She specifically stated she was an unhappy parent and a frustrated parent. She repeatedly reported the idea that where her son receives mathematics instruction has not been a discussion, or even a

process. According to the parent, the school simply stated mathematics in the regular classroom was school policy and that is where her child should receive instruction. The parent is aware of the ranges of special education services available, but within her child's school, there is no option.

Student.

The case manager facilitates the IEP process, including bringing together the family (mother), general education teacher and the student. The student indicates his mathematics class simply appears on his schedule; but he also indicated he is currently enrolled in the course he should be in, Geometry, as a 10th grader. The student indicated the case manager has a lot of input regarding where mathematics instruction occurs. Data (how fluent the student is in his math skills) plays a role in the decision making process. The student reported ultimately he has the ability impact his math skills and abilities; his mother and case manager can make suggestions, but the student doesn't necessarily follow their advice.

The student did not have a clear understanding of the IEP and placement process. He indicated his mathematics courses simply appeared on his schedule. It also seemed the student did not have a clear understanding of his disability. In the survey given prior to the interview, the student indicated he is receiving special education services under the disability category of Speech and Language and had been for three to four years; according to his mother's results, the student receives services under the disability category of Other Health Disabilities and has been receiving services for five to 10 years.

Findings

According to Stake (2005), the purpose of multiple case is to study an object or phenomenon as a collection. In this case the placement process and influence are the phenomenon and the three separate sites, rural, suburban and urban, are the collection. The use of multiple case presents the opportunity to study similarities and differences among the cases in order to understand the placement process better.

Semi-structured interviews were the primary source of data for this research. Data was also obtained from demographic surveys, critical incident instruments directed toward the case manager, and through the examination of organizational documents, including individual district websites and the Minnesota Department of Education website. Four major findings emerged:

1. The placement process is a team decision.
2. Course options, the master schedule and graduation requirements are influential in the placement process.
3. A range of special education services are available, but not all needs are being met.
4. Data provides a jumping off point.

Quotations from the participants will be used to help build a better understanding of the findings. Supplemental documentation will be used, as well. The goal will be to provide rich descriptions of the phenomenon from the varying perspectives of: case manager, general education teacher, principal/administrator, parent and student.

Finding 1: The placement process is a team decision.

While all participants agreed the placement process was a team decision, four sub-findings emerged. The first relates to the extent of involvement of the case manager in the placement process. The case manager is the most influential team member in the placement process. According to the urban parent, “I think it’s completely driven by the individual person managing that child’s education.” And, the suburban student indicated “they’ve done this for so long, they know what I need as a student...so I figure, let the decision making go to them because they have more experience.” When asked who regularly participates in making math placement decision, the rural case manager indicated “Case Manager...I mean, IEP team....but the case manager...” The suburban administrator also supports the finding: “Yeah. It’s a team decision. I think the case manager has quite a bit of weight in it.” The idea that the case manager is highly influential was also supported in the critical incident forms. The suburban form indicated the case manager made a recommendation regarding mathematics instruction and the parent supported the recommendation.

The second sub-finding that emerged from the data regarding placements as a team decision was the idea that administrators played a minor role in the placement process. According to the suburban administrator, “I usually am not that active. I usually kind of defer to the case manager and the math teachers.” The rural administrator indicated:

Usually in the school of our size I know most of the kids. There’s been very few meetings that I’ve sat in and looked at the kid not knowing

anything about them. So I do usually have some input from what on what I've observed from them in hallways, at lunch, those types of things. And then being a former math teacher, as the math discussions take place I'm usually able to give some input there. But I'd say the majority of the time, I am listening and offering minor suggestions.

Both the suburban parent and urban parent indicated limited participation in the placement process: "because he's not a troublemaker, the first response that typically happens from middle school or high school is well, I don't know him... so that was kind of interesting. But, no, they didn't participate really at all" and "... he has had some form of special education since preschool. If I answer over the last eleven years, I'd say a little. But I haven't seen an administrator at a meeting for probably six years, maybe more. So I'd say almost none."

The third sub finding from the data indicated parents' participate in the placement process, but the experience is limited. All three parents from the three geographic locations reported they do take part in the IEP and placement process, but not to extent to which they would like. This lack of participation is often due to lack of knowledge about the special education process and/or course options. This was true for a parent new to the system, less than one year, as well as those that have been a part of the system, from five to 10 years. Two of the three families have education backgrounds, including a special education teacher and a spouse of a teacher. The third parent has a background in law and a doctorate. All indicated a certain level of frustration within the placement

process and a lack of knowledge surrounding the process. According to the rural parent:

I feel like its being done in a proper...in a fairly good manner. I mean, there's always things that can be changed. We could maybe have more information. In some cases, given to us beforehand, and you mentioned when we first met that this is my first time I've gone through this IEP thing, correct yes, it's my first time, and so there's information out there that I don't know...in working with IEPs and that stuff. And I don't know if in this school if there's even a class that in math particular if there's a lower class that [son] could even participate in, a slower, or lower, or...and we...I don't know if that's ever been brought up because he's been able to stay with his peers.

And the suburban parent indicated she felt ill prepared to be an active participant in her child's education:

I was really encouraged by some of teachers to participate in the meetings and come with ideas of what I think should be done. I just didn't feel like I had the professional background knowledge to do that and I wasn't really sure how I was supposed to participate. So maybe that's what's needed is a format for Parents' participation.' What do you think about this?' And I do think we ask those questions but because we're not asking those questions before the meeting, Parents aren't...they're kind of caught saying, well I have no idea, you know.

The urban parent also reported some frustration with the special education system: “well last year I was very frustrated and sort of gave up because that’s what happens to us as parents. And again, this is not my area of expertise. Even though I have a doctorate...I’m educated, but I’m not an educator.”

The fourth sub heading that emerged from the data was the idea that counselors are a part of the IEP team in the Suburban school. Information reported by the suburban high school indicates the counselors and play a role in the placement process. According to the critical incident Instrument, the guidance counselor was listed as a member of the team, participating in the team meeting and making recommendations regarding mathematics placement, “Because the student planned to attend a four year college, the guidance counselor and math teacher recommended that the student continue a full year of math.” The suburban mathematics teacher reported he regularly communicates with the case manager, as well as the counselor when thinking about placement: “I... forwarded my list on to the counselors. Then the counselors will bring the students in and talk with them ... The math department and the counselors have an ongoing conversation. Not specifically about one student but just about making sure our expectations are the same.” The suburban administrator also reported the counselor participates in making mathematics placement decisions: “because I think sometimes counselors have a more broad view or general view of maybe what’s out there, what’s available that a student could look at.”

Finding 2: Course options, the master schedule and graduation requirements are influential in the placement process.

All participants agree course options, the master schedule and graduation requirements are influential in the placement process. One key sub finding also emerged: the Minnesota state academic standards in mathematics and the Minnesota Comprehensive Assessment play a role in course offerings and placement. Course offerings, the master schedule and graduation requirements are impacting when and where students receive mathematics instruction. According to the suburban case manager, "We're limited in offerings." The urban case manager indicated "Here at the school we really don't have many math placement options. For the most part, most students with learning disabilities are on the general education math track." These thoughts were also echoed on the critical incidence form for both the urban and suburban case managers. When asked to what extent course options play in making placement decisions, the rural administrator replied:

To a huge extent here. We're very limited with what we offer. We have, for example, seventh grade has seventh grade regular math and seventh grade high math, and eighth grade same thing. Ninth grade, they can be either in algebra or be in geometry if they're on the faster track. There's not a necessarily a concepts class at a slower speed. So you're either in one of the two regular ed. tracks or you're in special ed. math. So we're limited as far as where students can be placed.

The suburban parent also expressed course options played a role in where her child received mathematics instruction:

...he had certain classes available to him and he had...they were classes that had special education support so that was key in the decision making. And that was good. Because math was a weakness, I think, I wish there would have been more alternatives for him.

According to sub finding one, the Minnesota academic standards in the area of mathematics and the Minnesota Comprehensive Assessment in the area of mathematics may influence where high school students with high incidence disabilities receive their mathematics instruction. According to the urban administrator:

I think they [standards and assessments] are pretty huge because I think that's what's really driving the whole model here. This is true in reading as well as math, the idea that while we special ed. teachers are wonderful, there's no way we know math as well as an algebra or geometry or algebra II teacher. We can't supplant that. We can only support it. That's the dominant philosophy... Special ed. has been traditionally a completely separate shop, curriculum wise. Everything now in the district, and certainly here at the school, is standard based and standardized curriculum across the district. So even in special ed. classrooms you see the same kind of...even in that pullout class...the same kinds of things being addressed.

The suburban case manager also feels the standards and assessments are impacting placement: "they do look at it [MCA test scores] as far as assessments

in where kids will go.” The rural parent indicated he believed the standards were playing role in where his child receives mathematics instruction:

I don't know what the state's objectives are...: I think they're wrong. I have thought they're wrong. Why should we teach a kid how to pass a test? That's kind of silly. We should teach kids as much knowledge as we can.... Do we need state standards to get out of high school? We need a kid to be able to obtain as much knowledge as he can while he's in high school, whether it's being able to read and write, and add and subtract, versus being able to high physics, high geometry. We need to set our schools to be able to differentiate some of them kids and you don't always have A students, you don't always have failing students. The A students you can put ahead, the failing students it's hard to put them back because they lose their sense of quality. And so we teach them what they need to know to live in life... I mean, I'm sorry, I believe in the schools, but I believe the politicians are creating things that should not be there.

The urban parent also expressed how she felt the state standards and state testing were influencing course options and mathematics placement options:

I don't even think it's a decision. Tenth graders go to this class...As far as I can tell. It's really arbitrary to me. I don't think it's a decision, it's a default ...The reason all kids have to be at this level of math, for example, is because that's the state standard and that's No Child Left Behind and they can't stray from that. Even if a kid has a particular strength or particular struggle. .. I think the federal and state regulations dictate the course

offerings and they're not a wide level of offerings and that dictates where he goes.

Finding 3: A range of special education services are available, but not all needs are being met.

All schools and participants reported there are a range of special education placements and services are available in all schools. Service delivery options included: a standard scope and sequence general education placement; general education with accommodations and modifications; general education within a co-taught classroom; general education with paraprofessional support; general education with an additional resource study skills; and resource mathematics classes. Each participant also reported on the available supports and services available to all students, including general and special education students. Additional supports included: classroom teacher help before and after school; before, during and after school tutoring and the option to re-test and re-quizz for higher/passing scores. Participants reported not all student needs are met within the available course options, range of special education services, and additional supports available. When asked if she felt her son's needs were being met in regards to math, the urban parent replied "He's way behind in math, he's behind in basic skills, and nobody seems to care." The suburban case manager indicated:

... our students are struggling in those [general] classes. So we've had lots of discussion about how do we do this, and a lot of our conversation right now is talking about addressing the needs of these kiddos, because

you can differentiate only over a certain range of ability and achievement...There aren't a lot of choices at the low end...it's very much driven by the high end. How are we fitting the needs...?

In response to the elimination of "lower" track of math courses, the suburban case manager reported:

NCAA does not accept a Standards math class in the title. So you could just change the name of it, which is the way a lot of schools get around it. And have the standards class be higher algebra and the regular is higher algebra honors. Really? That's just...part of it is trying to boost that bottom and saying, 'okay, if we raise our expectations, the students will raise as well.' That's a big push. Is it effective? No.

And finally, the suburban case manager indicated "there is a certain culture in this community as far as...we are a college prep high school. Everybody is above average. OK...Well, they're not." The urban case manager also expressed concern regarding meeting student needs:

We don't have anything. If we have students who are struggling in geometry...or for example ninth grade students because they really don't have any options. 'Sorry, you just have to sit here and try as hard as you can.' But they don't want to try because they're already frustrated and they know they don't have another math class they can go into unless they've been held back, that type of thing.

According to the rural mathematics teacher, students with IEPs do not always take advantage of additional opportunities for support. "Right. You can push the

kids on IEPs a little bit more. You should work on this during study skills. ‘Okay, okay.’ But to get them to follow through on some of that is another story.” The suburban case manager also reported a similar response:

They usually need a little more encouragement. A lot of them aren’t that self-directed and aren’t that strong in their advocacy to really seek that out. What I hear from some kids when they do go in, especially during zero hour, is well there were 10 other kids there so I didn’t get the help I needed. Right so what are we going to do about that? And they’re really looking for one-on-one instruction. And part of that I think is their self-esteem. They don’t want to go in front of the class or in front of 10 other kids and say I can’t get this. That’s a piece of it

Finding 4: Data provides a jumping off point.

All cases agree data plays a role in the decision making process when determining where students with high incidence disabilities will receive mathematics instructions. In the urban high school, administrators indicated” MAP scores, MCA scores, past performance, the special ed. assessment information, within those available courses those pieces of information are pretty important.” The urban case manager also indicated data based decision making plays a part in making placement decision: “MAP scores, MCA scores, and then in-class work too.” The rural administrator and case manager also site data based decision making as it relates to making mathematics placement decisions: “Prior success, failures, struggles, both are MCA data plus classroom data plus

we do some progress monitoring data;”and “If it’s an initial evaluation we’ll look at test results and discuss it at that IEP meeting with the math teacher.”

Summary

This chapter provided a description of the data analysis process employed. Each case was analyzed separately and followed the process outlined. The chapter also provided rich descriptions of the three cases: rural, suburban, and urban. Lastly, the chapter presented key findings obtained through the semi-structured interviews with the 15 participants, including three parents of high school students with a high incidence disability, three high school students with a high incidence disability, three case managers of a high school student with a high incidence disability, three high school mathematics teachers and three high school administrators from three different high schools in three different geographic areas: rural, suburban and urban. The findings were presented as a cross case comparison, looking at similarities and differences among the three separate sites. Findings were presented with the support of participant quotes, as well as responses from the critical incidence form and survey. All responses were related to the research questions. Finding 1 directly relates to research question one regarding the process of special education case managers in making mathematics placement decisions for high school students with high incidence disabilities. Findings 2 through 4 relate to question two and what influences the decision making process of special education case managers in regards to making mathematics placement decisions for high school students with high incidence disabilities. Finally, all findings relate to question

three and how the placement process differs in urban, rural and suburban schools in the state of Minnesota. Each research question has been addressed through the participants' point of view. Results will be discussed further in Chapter 5.

Chapter 5

Discussion

The purpose of this multi case study was to describe the experiences of case managers in making mathematics placement decisions of high school students with high incidence disabilities, and the issues that may influence the decision making process. Specifically, the goal was to provide rich descriptions of the placement phenomenon from the varying perspectives of: case manager, general education teacher, principal, parent and student, in three different geographic locations. It was hoped that descriptions of the placement process may assist the current population of special education case managers in determining best practice to find a balance between meeting student needs and meeting state and federal accountability guidelines, as well as mathematics standards. This chapter will present a summary and conclusions of the research findings as they relate to the research questions and the literature. Next, the researcher will discuss limitations and delimitations of the research. Finally, the researcher will present recommendations and suggestions for further research.

Summary of Findings and Conclusions in Relation to the Research

Questions

The study was based on the following three research questions:

1. What is the process of special education case managers in making mathematics placement decisions for high school students with high incidence disabilities?

2. What influences the decision making process of special education case managers in regards to making mathematics placement decisions for high school students with high incidence disabilities?
3. How does the placement process differ in Urban, Rural and Suburban schools in the state of Minnesota?

The four findings reported in Chapter 4 directly relate to the research questions in a variety of ways.

Research question 1.

The process of placing high school students with high incidence disabilities is based on a team decision. The case manager facilitates the process by making contact with the key players of the Individual Education Plan (IEP) team and arranging a meeting at an agreed upon time and place. The Individuals with Disabilities Education Act (IDEA) (2004) indicates the team should be comprised of: the student, a parent or guardian, a representative of the school district, a classroom teacher, and a person licensed in the area of disability. Case managers and administrators across sites made reference to attendance and compliance, and making sure at least one general education teacher was able to attend; or having parents sign the agreement of non-attendance.

The level of participation within the placement process varied among participants. Case managers played a key role. Parents do participate in the placement process, but their experience is limited. Parents in all three districts reported attending meetings and making contributions, to some extent. The

urban parent indicated she felt placement was arbitrary and pre-determined. The rural parent reported he was not sure what options were available to his son regarding mathematics instruction.

Mathematics teachers are regularly invited to report on student progress within the classroom, but reported they have never been a part of the placement discussion. Two teachers admitted they don't know what happens after they report their data. These same teachers indicated they would be interested in being a part of the placement discussion.

Administrators generally attend IEP meetings. Their level of involvement is often minimal unless there are behavior concerns or major disagreements. Both the suburban and rural administrators report they regularly defer to case managers and mathematics teachers regarding the placement process.

Case managers are taking the lead on placement decisions. They are generally the person with the most holistic knowledge of the student. Parents want to be more active in their child's education and planning but don't know how. They often don't know what questions to ask. Even the families with educational backgrounds find special education difficult to maneuver. Part of the concern expressed by parents is the lack of knowledge or information surrounding the process. Parents expressed an interest in receiving information ahead of time so they can process the information. It is reasonable to assume a parent may find it difficult to read a 30 page evaluation report during the course of a results meeting. They are left to accept the recommendations of the experts, the school, even though they may not be comfortable with the decisions being

made. As reported in Chapter 4, the rural parent did not know if his child's IEP had a math goal and reported "it's my first time, so there's information out there I don't know." The urban parent indicated she felt mathematics placement was predetermined; that she wasn't a full member of the process. She was told where her child would receive instruction. At one meeting, the parent reported the school simply told her "We're doing it right. You should try to calm down." The urban case manager also indicated "a lot of the information with the population we work with...it's kind of over their head oftentimes. The parents don't even know."

Conclusion.

Two provisions of IDEA, Free and Appropriate Public Education (FAPE) and the Least Restrictive Environment (LRE) should both be playing a significant role in the placement process. First, the placement should be *appropriate*. Second, according to the LRE mandate, the placement process should be a team decision. It appears that on the surface, all sites are meeting this stipulation of the provision in that meetings are conducted with key players present. But, the spirit of the law would support *active* participation by parents, administration and core content teachers. Case managers need to remember all parties are looking at the child from a different angle; all parties have the student's best interest at heart. Unfortunately, that may look different for different members of the team. And currently, all members of the team are not actively participating in the process.

Information gathered from Finding 1 indicates not all IEP team members are equally active within the placement process. This is consistent with the research of Martin, Marshall, and Sale (2004). Their study measured the perception of 1638 meeting participants at 398 IEP meetings over the course of three years. The study revealed case managers take the most active role in the IEP and placement process. Case managers talked more than any other participant. And, administrators played a less active role in the IEP and placement process. The finding is also consistent with that of Menlove, Hudson and Suter (2001). The study looked at the satisfaction of team members in regards to the IEP meeting and development process, including being prepared for their role in the process, and understanding the terminology and forms used in the meetings. Survey results indicated core classroom teachers, and in the current study, mathematics teachers, are active in reporting on progress, but not in placement discussions. The results from their study of over 1000 IEP team members indicated general education teachers didn't always attend IEP meetings, and when they did attend, they did not feel connected to the team or the process. The mainstream teacher's lack of connection was often attributed to lack of training and being unsure of their role in the IEP and placement process. Finally, Finding 1 is consistent with the research from Garriott, Wandry, and Snyder (2000) regarding parent participation. Their study of 84 parents looked at perceived levels of involvement and satisfaction in IEP planning and conferences. The results showed parents are present at their child's IEP meetings, but almost 50% take a more passive role in the process that involves

receiving information regarding what the school plans to provide for the student versus making suggestions related to the education of their child. Approximately 54% of the parents reported they did not feel they were equal and respected members of the IEP team. Of those 54%, 27% reported feeling useless or inferior.

Research question 2.

Many factors influence the mathematics placement process of high school students with high incidence disabilities. Findings 2, 3, and 4 support the idea that making placement decisions is not an easy one, nor is it uniform. Participants reported the master schedule, course options, service delivery options, graduation requirements, state standards and testing and student data play a role in where students receive mathematics instruction. IDEA (2004) indicates student's placement should be based on student need, which is determined by individual progress and performance

Finding 2 revealed the realities of graduation requirements, course options and the master schedule and their role in when and where mathematics instruction occurs. The rural administrator indicated "we're very limited with what we offer...So we're limited as far as where students can be placed." The suburban case manager echoed a similar response "we're limited in offerings." The urban case manager reported "Here at the school we really don't have many math placement options. For the most part, students with learning disabilities are on the general education math track." The suburban parent also reflected "...I wish there would have been more alternatives for him" in regards to her son.

The MCA's and state standards are impacting where mathematics instruction occurs. The urban parent was quite outspoken in her response: "I don't think it's a decision, it's a default...the reason kids have to be at this level of math, for example, is because that's the state standards and that's No Child Left Behind...I think federal and state regulations dictate the course offerings and they're not a wide level of offerings..." The rural parent also had strong feelings about the impact of the standards on course options; "I don't know what the state's objectives are...I think they're wrong."

Finding 3 supported the conclusion that there are a range of special education placement and service delivery options available across sites. As reported in Chapter 4, sites and participants also report a variety of supplemental supports in the area of mathematics for all students. Service delivery options included: a standard scope and sequence general education placement; general education with accommodations and modifications; general education within a co-taught classroom; general education with paraprofessional support; general education with an additional resource study skills; and resource mathematics classes. Each participant also reported on the available supports and services available to all students, including general and special education students. Additional supports included: classroom teacher help before and after school; before, during and after school tutoring and the option to re-test and re-quiz for higher/passing scores.

Participants reported not all student needs are met within the available course options, range of special education services, and additional supports

available. In both the urban and the suburban high school, placement into resource classes was the exception, not the norm. At the urban high school, there are no resource class options available to ninth or 10th graders. Service delivery options for these students included additional support through a resource studies skills class or placement in a co-taught mathematics class. The urban case manager feels not all students are getting the support they need: "...they really don't have any options... 'Sorry, you just have to sit here and try as hard as you can.'" The suburban case manager also cited lack of course options: "you can differentiate only over a certain range of ability and achievement...there aren't a lot of choices at the low end...it's very much driven by the high end." The suburban administrator reported "I think there are some gaps and I know... you might have to push a student up or down based on what's available.... So I think it [course options] plays a big role. I hate to see that because it shouldn't, but at the same time, given resources, we just put them..."

Parents also expressed concerns about student needs, available course options and service delivery models. The urban parent reported: "Now how much help he gets depends on how much I yell. But he has not gotten any special placement for the last four maybe five school years... He's not getting his needs met, he's way behind in math, he's behind in basic skills, and nobody seems to care." The rural parent indicated his son's greatest academic struggle is mathematics: "Right now we're really concerned about...we may have to look into this [mathematics options] a little more because he is really struggling in math right now. He's down to 40%."

All students struggling in mathematics have access to additional mathematics teacher support before and after school. The suburban and rural mathematics teachers indicated they allow students to re-test and re-quiz in an attempt to earn passing and/or higher scores. The urban school provides after school mathematics support classes. Unfortunately, not many of the students with high incidence disabilities follow through and take advantage of these opportunities. The rural mathematics teacher reported: "You can push the kids on IEPs a little bit more...you should work on this...But to get them to follow through is another story." The suburban case manager reported: "They usually need a little more encouragement. A lot of them aren't that self-directed ...And part of that I think is their self-esteem." The suburban parent also indicated

the only teachers [my son] trusts in the school are special education teachers. So, advocating him to talk with the other teachers is not such an easy thing because he doesn't have a trust level with them because he feels like they're looking at him with a negative perspective and not looking at him... And I think that anxiety for him probably interrupts his learning when he's learning with the general education teachers.

The rural student reported: "I don't really like asking questions because I like to feel like I'm independent."

Finding 4 indicates data is considered when making placement decisions and the types of data considered are fairly consistent across sites. Data sources include NWEA Measures of Academic Progress (MAPS) testing data and previous MCA scores. Student's previous and current progress in mathematics is

also considered. Participants also cited special education evaluation data as a source of information when considering placement. The rural high school also uses curriculum based measures (CBMs).

There was some concern expressed by the urban parent regarding data usage, or lack thereof. The parent acknowledged data should be playing a role in where her son receives mathematics instruction. She conceded she believes the team *looks* at her son's data. But, as far as placement discussions and decisions, she reports "so they have to take this class.' And it has nothing to do with his level, competencies or his abilities and background.'" The suburban parent also indicated: "Well. I think they collect a lot of data. The teachers go around and collect a lot of data. But they don't um always share that data or where they made their decision, ah, in the meetings."

Conclusion.

Again, FAPE and LRE come in to play. According IDEA (2004) and the LRE provision, districts are required to make available a continuum of services to students, including a full range of options, from the general education classroom, (least restrictive) to special classes, special schools, homebound instruction, hospitals or facilities (more restrictive). The language of the law is quite specific in that it states instruction could and should occur, to the greatest extent possible, in a general education classroom; but if the education provided in the regular classroom was not appropriate, then special classes could and should be considered. The law is very clear in that placement decisions should be made on a case by case basis. The LRE provision does not state all students must receive

instruction in a general education classroom 100% of the time. Though, it should be one of the many options considered and available.

Based on the results of Finding 2 and Finding 3, it would seem many participants, including parents, case managers, administrators and mathematics teachers, believe there is a perception that current placements do not meet the LRE guidelines. This supports the concerns regarding the effectiveness and appropriateness of inclusion programs raised by the Council for Learning Disabilities (1993), the Division for Learning Disabilities (1993), Learning Disabilities Association (1993), and the National Joint Committee on Learning Disabilities (1993). Most specifically, the groups were concerned about inclusion programs ability to meet individual student needs and to provide appropriate supports and services. The results run counter to the beliefs of the National Council on Disability (NCD). The NCD advocates for a more inclusive educational environment, with supports and services necessary to be successful. The NCD's (1989) position stems from the need to close the achievement gap between students receiving special education services and their non-disabled peers, and the potential long-term economic effects, including unemployment or underemployment.

Information gathered from Finding 3 also indicate students with high incidence disabilities don't always take advantage of supports and services available to them before and after school. This is consistent with the research findings of Sideridis (2003). Sideridis' study looked at the presence of helplessness and self-esteem in 132 students with learning disabilities.

According to the results of the study, when faced with difficulty (repeated failure in mathematics), students with LD experienced decreased levels of self-esteem and motivational deficits when compared with typical peers. This is also consistent with Grolnick and Ryan's (1990) study on self-perception and motivation. The purpose of their study was to look at motivation and teacher perception for students with and without Learning Disabilities. According to Grolnick and Ryan's (1990) multiple group comparison study of 148 third through sixth graders, students with Learning Disabilities see themselves as less competent than their same aged peers. So, even with the availability of supplemental supports, students with disabilities will need additional support and encouragement to access the support because of self-esteem and motivational concerns.

Research question 3.

The placement process among urban, rural and suburban schools is relatively similar. Findings 1 through 4 support research question three as it relates to the placement process across cases. Finding 3 doesn't address the placement process directly, but it does address the over-arching idea that even with a variety of placement options available, many participants across sites feel student's needs are not being met.

In regards to Finding 1 and the placement process, itself, in all three cases, case managers facilitated meetings and solicited input from the other members of the IEP team. And, all parents felt limited in their level of participation. Again, at all three sites it was reported administrators play a limited

role in the placement process, though they do regularly attend IEP and placement meetings. Mathematics teachers at the rural and urban site indicated they have limited knowledge of the placement process and have not been a part of the placement discussion. The suburban mathematics teacher indicated his activity in the process is fairly limited. Most students come to him on a pre-determined track based on previous year's course of progression. He does become more involved when students would like to participate in an advanced track, but he does not feel the students is academically prepared to do so. As with Research Question 1, this is consistent with the research of Martin, Marshall, and Sale (2004) and Menlove, Hudson and Suter (2001) in that the case manager takes the most active role in the placement process; the administration, parents, and mathematics teachers play a secondary role.

Finding 2 also supports research question three and the placement process across sites. Participants from all three sites indicated course options were limited, though in slightly different ways. In the rural district, there are only three math teachers for all seventh through 12th grade students. So, according to the rural administrator students only have a few options: regular track math, advanced track math, or resource track math. In the suburban school, choices are abundant for high achieving students-community perception is such that all students are above average; leaving less option and choice for lower achieving students. One difference noted among the sites was the perceived community pressure in the suburban school district. Within the suburban high school, and the community at large, there is a belief that "Everybody is above average

[academically].” And the reality the case manager faces is “O.K...well, they’re not.” At the urban school, the administrator, mathematics teacher, case manager and parent all reported placement wasn’t exactly a choice; and course options were limited because all students were expected to follow the natural progression of the traditional mathematics program offerings within the building.

Finally, Finding 4 and the use of data when considering placement was consistent across sites; though the types of data used varied slightly. What was also consistent across the suburban and urban sites was the idea that placement wasn’t necessarily a “process or discussion”, so it is curious that all sites reported using data as an influence in the placement process. For most schools, the data most frequently used was previous MCA data, and that was generally attributed to placement in a MCA remediation course for those who did not meet proficiency.

Conclusion.

It seems both the urban and suburban schools are specifically providing curriculum and instruction related to meeting high academic standards. The urban administrator indicated the platform at the urban high school is high expectations for all students. The suburban high school is noted for being a college prep school, and the community perception is that all students are above average. These philosophies do align with the federal No Child Left Behind Act (2001), IDEA and The National Council of Teacher of Mathematics (NCTM). Each advocates all students, including those with disabilities, should have access to a quality education with a rigorous curriculum and highly qualified teachers.

Though, this same philosophy raises concern with the Council for Learning Disabilities (1993), Division for Learning Disabilities (1993), Learning Disabilities Association (1993) and the National Joint Committee on Learning Disabilities (1993) and the ability of inclusion programs to meet individual student needs.

Limitations and Delimitation of the Study

Noted here are limitations and delimitations of this research study. The first limitation is the use of interviews as a primary source of data. According to Creswell (2009), the “researcher’s presence may bias responses and not all people are equally articulate and perceptive” (p. 179). Because the researcher did not have a previous relationship with any of the participants, it is reasonable to assume biased responses were present. Also, the notion that all people are not equally articulate and perceptive was observed during interviews with the students. A second limitation of the study was the use of the Critical Incident Instrument. The information received through the instrument was filtered through the lens of the case manager and not that of the researcher. Participation in this study is delimited to (a) case managers of (b) high school students with (c) high incidence disabilities in (d) rural (e) suburban and (f) urban areas (g) in the state of Minnesota.

Actionable Recommendations

After reviewing the findings, analysis and conclusions of the current study, the researcher makes three recommendations. The recommendations are directed to IEP team members, as they have the most knowledge of how federal law and the placement process *should* work. All recommendations are related to

participation in the placement process, ensuring a holistic view of the student, the process and options, and to promote a forum for open and honest discussions about student needs and expectations.

Case managers need to actively engage families in the placement process.

The parents in this study revealed they do not feel actively engaged in the placement process. That lack of engagement stems from numerous sources, including not fully understanding the placement process, not fully understanding the placement options and not feeling their input is valid or valued. Case managers need to be mindful of, and sensitive to, parent's views about the IEP process.

The researcher recommends case managers provide draft documents to parents prior to meetings to give them time to read and process evaluation data and IEP proposals. The case managers should also provide a "Frequently Asked Questions" document to families to consider as they read through the draft paperwork. Case managers should also provide workshops for families new to special education. Workshops could focus on such topics as understanding and managing special education documents, frequently used acronyms, vocabulary and terminology, and even descriptions of how disabilities can manifest itself at school and/or at home. These suggestions may assist case managers in facilitating an increase in the active engagement of families in the IEP and placement process.

Mathematics teachers need to actively engage in the placement process.

Mathematics teachers revealed they do not play a significant role in making mathematics placement decisions. They are comfortable reporting student progress and making suggestions and recommendations to be successful in the general education classroom. But, they are not regularly a part of the discussion of how or where a student should receive mathematics instruction.

The researcher suggests case managers meet mathematics teachers during a common collaboration time to discuss special education evaluation performance data and how that data relates to standardized group administered tests and performance in the general education classroom. Case managers should also invite mathematics teachers to participate in IEP meetings when placement is a discussion. Mathematics teachers would be able to share student performance data from class, as well as information regarding course content and the scope and sequence of the curriculum. Mathematics teachers would have a better understanding of the student's overall skills and abilities, and how those skills and abilities may translate into the classroom.

The case manager should facilitate professional development for the mathematics teachers. Professional development would include a variety of topics and would take place over multiple sessions. Suggestions for professional development include: a description of the placement process, definition of key terms and acronyms, and explanation of the role of the Least Restrictive

Environment (LRE) provision of the Individuals with Disabilities Education Act (IDEA), descriptions of how disabilities can manifest themselves at school, and suggestions for the implementation of appropriate modifications and accommodations. These suggestions may assist case managers in facilitating an increase in the active engagement of mathematics teachers in the IEP and placement process.

Administrators need to actively engage in the placement process.

Information obtained from many of the study participant's revealed administrators regularly attend IEP meetings, but are generally passive in their interaction, unless behavior is a concern. Administrators are better prepared than case managers to discuss master schedule concerns and building philosophies regarding course offerings. Case managers don't always know the specifics of building policies, nor have good explanations.

The researcher recommends administrators come to IEP and placement meetings armed with knowledge specific to the student under consideration. Specific knowledge about the student would include special education assessment data, academic history and performance, and performance on standardized tests. Administrators also need to support case managers and the IEP and placement by utilizing active and empathetic listening skills during IEP and placement meetings in an effort to positively engage parents in the discussion process.

Administrators can and should support case managers in their efforts to increase family engagement and mathematics teacher engagement in the IEP

and placement process, which will ultimately increase administrator involvement. Administrators can allocate funding for workshops to assistant parents in navigating the special education process. Administrators should also allocate time and funding for professional development of mathematics teacher. These suggestions may assist case managers in facilitating an increase in the active engagement of administrators in the IEP and placement process.

Suggestions for Future Research

The researcher recommends further studies be conducted to continue the process of discovering how and why mathematics placement decisions are made for high school students with high incidence disabilities. This study looked at the placement process through the lens of 15 different participants associated with three high schools, in three different geographic locations, in the state of Minnesota. Based on the results of this study, the researcher recommends the following:

1. Based on the limitations of the current study in regards to generalizability, a survey of a large sample of case managers should be conducted across the state of Minnesota and/or the country, to evaluate the degree to which the same or similar findings may be uncovered regarding the placement process and the factors surrounding placement decisions.
2. Because perceived lack of meaningful participation among parents was common among all sites, a mixed methods study could be utilized to determine how meaningful participation could be improved.

3. During this study, student needs and the perception that student needs were not being met was a common theme across cases and participants. A similar follow-up study should be undertaken to determine a definition of “needs” and how best to meet those needs.

Summary

This chapter served as a summary of the analysis and findings related to the case manager’s experience in making mathematics placement decisions of high school students with high incidence disabilities. Each finding contributes to the understanding of the complexity of the decision making process and the relatedness of multiple key players within that process. Recommendations for action support the idea that ongoing conversation needs to occur to ensure students are appropriately placed and their mathematics needs are being met.

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APPENDIX A.1

ADMINISTRATOR CONSENT FORM

Mathematics Placement Decisions for High School Students with High Incidence Disabilities: A Collective Case Study

You are invited to be in a research study of educators, administrators, students and families, to examine the process surrounding mathematics placement for high school students with high incidence disabilities. You were selected as a possible participant because you are an administrator, currently working with students with disabilities. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Amy Murzyn, University of Minnesota, Duluth.

Background Information

The purpose of this study is: To describe the experiences of case managers in making mathematics placement decisions of high school students with high incidence disabilities and the issues that may influence the decision making process. This study will attempt to answer the following questions:

- (1) What is the process of special education case managers in making mathematics placement decisions for high school students with high incidence disabilities?
- (2) What influences the decision making process of special education case managers in regards to making mathematics placement decisions for high school students with high incidence disabilities?
- (3)) How does the placement process differ in urban, rural and suburban schools in the state of Minnesota?

Procedures:

If you agree to be in this study, we would ask you to do the following things: Participate in a survey and follow-up interviews. Survey question were designed to collect demographic data. Interview questions were designed to collect perceptual data regarding the experiences of case managers in making mathematics placement decisions of high school students with high incidence disabilities and the issues that may influence the decision making process. You

will be contacted by e-mail and/or telephone to determine an agreed upon date and time for the interview. Interviews will be audio- taped and will last approximately 30 minutes per session, with a maximum of two sessions.

Risks and Benefits of being in the Study

Essentially your participation poses no risks to you. However, you may find some of the questions to be uncomfortable. You may choose not to answer any of the questions without repercussion from the researcher.

The benefits will accrue to the institutions that are the subject of the interview. There is no direct benefit to subjects who participate in this study.

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. The electronic audio files will be stored on a UMD password protected computer. The researcher and transcriptionist will have access to the audio recordings for transcription. Audio recordings, paper copies of the survey and all digital files will be erased within 60 days of the completion of the study. All participant names and identifying information will be removed.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is: Amy Murzyn. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact the researcher or advisor at the University of Minnesota, Duluth, 612-501-3027, acke0025@d.umn.edu, Dr. Trudie Hughes, EdD, 218-726-7174, thughes@d.umn.edu. If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature: _____ Date: _____

Signature of parent or guardian: _____ Date: _____
(If minors are involved)

Signature of Investigator: _____ Date: _____

APPENDIX A.2

CASE MANAGER CONSENT FORM

Mathematics Placement Decisions for High School Students with High Incidence Disabilities: A Collective Case Study

You are invited to be in a research study of educators, administrators, students and families, to examine the process surrounding mathematics placement for high school students with high incidence disabilities. You were selected as a possible participant because you are a special education teacher and case manager, currently working with students with disabilities. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Amy Murzyn, University of Minnesota, Duluth.

Background Information

The purpose of this study is: To describe the experiences of case managers in making mathematics placement decisions of high school students with high incidence disabilities and the issues that may influence the decision making process. This study will attempt to answer the following questions:

- (1) What is the process of special education case managers in making mathematics placement decisions for high school students with high incidence disabilities?
- (2) What influences the decision making process of special education case managers in regards to making mathematics placement decisions for high school students with high incidence disabilities?
- (3)) How does the placement process differ in urban, rural and suburban schools in the state of Minnesota?

Procedures:

If you agree to be in this study, we would ask you to do the following things: Participate in a survey and follow-up interviews. Survey question were designed to collect demographic data. Interview questions were designed to collect perceptual data regarding the experiences of case managers in making mathematics placement decisions of high school students with high incidence

disabilities and the issues that may influence the decision making process. You will be contacted by e-mail and/or telephone to determine an agreed upon date and time for the interview. Interviews will be audio- taped and will last approximately 30 minutes per session, with a maximum of two sessions.

Risks and Benefits of being in the Study

Essentially your participation poses no risks to you. However, you may find some of the questions to be uncomfortable. You may choose not to answer any of the questions without repercussion from the researcher

The benefits will accrue to the institutions that are the subject of the interview. There is no direct benefit to subjects who participate in this study.

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. The electronic audio files will be stored on a UMD password protected computer. The researcher and transcriptionist will have access to the audio recordings for transcription. Audio recordings, paper copies of the survey and all digital files will be erased within 60 days of the completion of the study. All participant names and identifying information will be removed.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is: Amy Murzyn. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact the researcher or advisor at the University of Minnesota, Duluth, 612-501-3027, acke0025@d.umn.edu, Dr. Trudie Hughes, EdD, 218-726-7174, thughes@d.umn.edu. If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature: _____ Date: _____

Signature of parent or guardian: _____ Date: _____
(If minors are involved)

Signature of Investigator: _____ Date: _____

APPENDIX A.3

MATHEMATICS TEACHER CONSENT FORM

Mathematics Placement Decisions for High School Students with High Incidence Disabilities: A Collective Case Study

You are invited to be in a research study of educators, administrators, students and families, to examine the process surrounding mathematics placement for high school students with high incidence disabilities. You were selected as a possible participant because you are a high school mathematics teacher, currently working with students with disabilities. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Amy Murzyn, University of Minnesota, Duluth.

Background Information

The purpose of this study is: To describe the experiences of case managers in making mathematics placement decisions of high school students with high incidence disabilities and the issues that may influence the decision making process. This study will attempt to answer the following questions:

- (1) What is the process of special education case managers in making mathematics placement decisions for high school students with high incidence disabilities?
- (2) What influences the decision making process of special education case managers in regards to making mathematics placement decisions for high school students with high incidence disabilities?
- (3)) How does the placement process differ in urban, rural and suburban schools in the state of Minnesota?

Procedures:

If you agree to be in this study, we would ask you to do the following things: Participate in a survey and follow-up interviews. Survey question were designed to collect demographic data. Interview questions were designed to collect perceptual data regarding the experiences of case managers in making mathematics placement decisions of high school students with high incidence disabilities and the issues that may influence the decision making process. You

will be contacted by e-mail and/or telephone to determine an agreed upon date and time for the interview. Interviews will be audio- taped and will last approximately 30 minutes per session, with a maximum of two sessions.

Risks and Benefits of being in the Study

Essentially your participation poses no risks to you. However, you may find some of the questions to be uncomfortable. You may choose not to answer any of the questions without repercussion from the researcher.

The benefits will accrue to the institutions that are the subject of the interview. There is no direct benefit to subjects who participate in this study.

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. The electronic audio files will be stored on a UMD password protected computer. The researcher and transcriptionist will have access to the audio recordings for transcription. Audio recordings, paper copies of the survey and all digital files will be erased within 60 days of the completion of the study. All participant names and identifying information will be removed.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is: Amy Murzyn. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact the researcher or advisor at the University of Minnesota, Duluth, 612-501-3027, acke0025@d.umn.edu, Dr. Trudie Hughes, EdD, 218-726-7174, thughes@d.umn.edu. If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature: _____ Date: _____

Signature of parent or guardian: _____ Date: _____
(If minors are involved)

Signature of Investigator: _____ Date: _____

APPENDIX A.4

PARENTAL CONSENT FORM

Mathematics Placement Decisions for High School Students with High Incidence Disabilities: A Collective Case Study

You are invited to be in a research study of educators, administrators, students and families, to examine the process surrounding mathematics placement for high school students with high incidence disabilities. You were selected as a possible participant because you are a parent or guardian of a student with a high incidence disability. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Amy Murzyn, University of Minnesota, Duluth.

Background Information

The purpose of this study is: To describe the experiences of case managers in making mathematics placement decisions of high school students with high incidence disabilities and the issues that may influence the decision making process. This study will attempt to answer the following questions:

- (1) What is the process of special education case managers in making mathematics placement decisions for high school students with high incidence disabilities?
- (2) What influences the decision making process of special education case managers in regards to making mathematics placement decisions for high school students with high incidence disabilities?
- (3)) How does the placement process differ in urban, rural and suburban schools in the state of Minnesota?

Procedures:

If you agree to be in this study, we would ask you to do the following things: Participate in a survey and follow-up interviews. Survey question were designed to collect demographic data. Interview questions were designed to collect perceptual data regarding the experiences of case managers in making mathematics placement decisions of high school students with high incidence disabilities and the issues that may influence the decision making process. You

will be contacted by e-mail and/or telephone to determine an agreed upon date and time for the interview. Interviews will be audio- taped and will last approximately 30 minutes per session, with a maximum of two sessions.

Risks and Benefits of being in the Study

Essentially your participation poses no risks to you. However, you may find some of the questions to be uncomfortable. You may choose not to answer any of the questions without repercussion from the researcher.

The benefits will accrue to the institutions that are the subject of the interview. There is no direct benefit to subjects who participate in this study.

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. The electronic audio files will be stored on a UMD password protected computer. The researcher and transcriptionist will have access to the audio recordings for transcription. Audio recordings, paper copies of the survey and all digital files will be erased within 60 days of the completion of the study. All participant names and identifying information will be removed.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is: Amy Murzyn. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact the researcher or advisor at the University of Minnesota, Duluth, 612-501-3027, acke0025@d.umn.edu, Dr. Trudie Hughes, EdD, 218-726-7174, thughes@d.umn.edu. If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature: _____ Date: _____

Signature of parent or guardian: _____ Date: _____
(If minors are involved)

Signature of Investigator: _____ Date: _____

APPENDIX A.5

STUDENT CONSENT FORM

Mathematics Placement Decisions for High School Students with High Incidence Disabilities: A Collective Case Study

You are invited to be in a research study of educators, administrators, students and families, to examine the process surrounding mathematics placement for high school students with high incidence disabilities. You were selected as a possible participant because you are a student or former student with a high incidence disability. We ask that you read this form and ask any questions you may have before agreeing to be in the study.

This study is being conducted by: Amy Murzyn, University of Minnesota, Duluth.

Background Information

The purpose of this study is: To describe the experiences of case managers in making mathematics placement decisions of high school students with high incidence disabilities and the issues that may influence the decision making process. This study will attempt to answer the following questions:

- (1) What is the process of special education case managers in making mathematics placement decisions for high school students with high incidence disabilities?
- (2) What influences the decision making process of special education case managers in regards to making mathematics placement decisions for high school students with high incidence disabilities?
- (3)) How does the placement process differ in urban, rural and suburban schools in the state of Minnesota?

Procedures:

If you agree to be in this study, we would ask you to do the following things: Participate in a survey and follow-up interviews. Survey question were designed to collect demographic data. Interview questions were designed to collect perceptual data regarding the experiences of case managers in making mathematics placement decisions of high school students with high incidence disabilities and the issues that may influence the decision making process. You will be contacted by e-mail and/or telephone to determine an agreed upon date

and time for the interview. Interviews will be audio- taped and will last approximately 30 minutes per session, with a maximum of two sessions.

Risks and Benefits of being in the Study

Essentially your participation poses no risks to you. However, you may find some of the questions to be uncomfortable. You may choose not to answer any of the questions without repercussion from the researcher.

The benefits will accrue to the institutions that are the subject of the interview. There is no direct benefit to subjects who participate in this study.

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Research records will be stored securely and only researchers will have access to the records. The electronic audio files will be stored on a UMD password protected computer. The researcher and transcriptionist will have access to the audio recordings for transcription. Audio recordings, paper copies of the survey and all digital files will be erased within 60 days of the completion of the study. All participant names and identifying information will be removed.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is: Amy Murzyn. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact the researcher or advisor at the University of Minnesota, Duluth, 612-501-3027, acke0025@d.umn.edu, Dr. Trudie Hughes, EdD, 218-726-7174, thughes@d.umn.edu. If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher(s), **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

You will be given a copy of this information to keep for your records.

Statement of Consent:

I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Signature: _____ Date: _____

Signature of parent or guardian: _____ Date: _____
(If minors are involved)

Signature of Investigator: _____ Date: _____

APPENDIX B.1

Interview Questions-Administrator

1. To what extent are mathematics IEP goals and objectives based on information obtained from IEP team member input?
2. To what extent do you, as a school administrator, expect general educators to participate in IEP team meetings?
3. To what extent do you participate in IEP team meetings?
4. To what extent do you feel you are an active participant in making mathematics placement decisions?
5. What influences IEP Team decisions regarding mathematics placement of special education students?
6. What information plays a role in placement decisions (data? parents? admin? gen. ed. teacher? sped teacher)?
7. What options are available to address student's mathematics instructional and behavioral needs? (Tutoring, supplemental math classes, on-line resources)
8. Who regularly participates in making the mathematics placement decisions?
9. What information is considered to determine if the student is appropriately placed?
10. How is the final mathematics placement decision made? (example- consensus, majority of members voting, other)
11. How often do you feel pressured to make a different mathematics placement decisions for special education students when the data/information may not clearly support the decision?
12. To what extent do course options play a role in placement decisions?
13. Are there barriers to making mathematics placement decisions? What are those barriers?
14. What are the service delivery options available for mathematics placement in your building?
15. To what extent do state standards and assessments (MCA) play in making mathematics placement decisions?

16. Is this an RTI building/district?

17. Is there a process in place (building wide/district wide) for making mathematics placement decisions?

APPENDIX B.2

Interview Questions-Case Manager

1. To what extent are mathematics IEP goals and objectives based on information obtained from IEP team member input?
2. To what extent do school administrators expect general educators to participate in IEP team meetings?
3. To what extent do mathematics teachers participate in IEP team meetings?
4. What influences IEP Team decisions regarding mathematics placement decisions of special education students?
5. What considerations are used by the IEP Team in determining appropriate mathematics placement? (data? parents? admin? gen. ed. teacher)
6. What options are available to address student's mathematics instructional and behavioral needs? (tutoring, supplemental math classes, on-line resources)
7. Who regularly participates in making mathematics placement decisions?
8. What information is examined to determine if the student has received appropriate mathematics instruction?
9. How is the final placement decision made? (example-consensus, majority of members voting, other)
10. How frequently do parents' attend IEP meetings?
11. How often do you feel pressured to make a different mathematics placement decisions for special education students when the data/information may not clearly support the decision?
12. To what extent does course option play a role in placement decisions?
13. Are there barriers to making mathematics placement decisions? What are the barriers in making math placement decisions?
14. What are the service delivery options available for mathematics placement in your building?
15. To what extent do state standards and assessments (MCA) play in making mathematics placement decisions?

16. Is this an RTI building/district?

17. Is there a process in place (building wide/district wide) for making mathematics placement decisions?

APPENDIX B.3

Interview Questions-Mathematics Teacher

1. To what extent are mathematics IEP goals and objectives based on information obtained from IEP team member input?
2. To what extent do school administrators expect general educators to participate in IEP team meetings?
3. To what extent do you participate in IEP team meetings?
4. Are you an active participant in making mathematics placement decisions?
5. What influences IEP team decisions regarding mathematics placement decisions of special education students?
6. What considerations are used by the IEP Team in determining appropriate mathematics placement?
7. What options are available to address student's mathematics instructional and behavioral needs? (tutoring, supplemental math classes, on-line resources)
8. Who regularly participates in making the mathematics placement decisions?
9. What information is considered to determine if the student is appropriately placed?
10. How is the final placement decision made? (example- consensus, majority of members voting, other)
11. How often do you feel pressured to make a different mathematics placement decisions for special education students when the data/information may not clearly support the decision?
12. To what extent do course options play a role in placement decisions?
13. Are there barriers to making mathematics placement decisions? What are those barriers?
14. What are the service delivery options available for mathematics placement in your building?
15. What information plays a role in placement decisions (data? parents? admin? gen. ed. teacher? sped teacher)?

16. To what extent do state standards and assessments (MCA) play in making mathematics placement decisions?

17. Is this an RTI building/district?

18. Is there a process in place (building wide/district wide) for making mathematics placement decisions?

APPENDIX B.4

Interview-Parent

1. To what extent are mathematics IEP goals and objectives based on information obtained from IEP team member input?
2. To what extent do you participate in the development of IEP goals and objectives?
3. To what extent do school administrators participate in IEP team meetings?
4. To what extent do mathematics teachers participate in IEP team meetings?
5. What influences IEP Team decisions regarding mathematics placement decisions of special education students?
6. What considerations are used by the IEP Team in determining appropriate mathematics placement? (data? parents? admin? gen. ed. teacher)
7. Who regularly participates in making decisions regarding where your child receives mathematics instruction?
8. How is the final mathematics placement decision made? (example- consensus, majority of members voting, other)
9. To what extent have you feel pressured to make a different mathematics placement decision for your child when the data/information may not clearly support the decision?
10. Do you feel course options play a role in where your child receives mathematics instruction?
11. Are there barriers in determining where your student receives mathematics instruction? What are the barriers in making math placement decisions?
12. Do you know what the service delivery options available are for mathematics instruction in your child's school?
13. To what extent do state standards and assessments (MCA) play in making mathematics placement decisions?

APPENDIX B.5

Interview Questions-Student

1. To what extent do school administrators participate in your IEP team meetings?
2. To what extent do mathematics teachers participate in your IEP team meetings?
3. To what extent do you participate in the development of IEP goals and objectives?
4. What influences IEP Team decisions regarding where you receive your mathematics instruction?
5. What considerations are used by the IEP Team in determining where you should receive mathematics instruction? (data? parents? admin? gen. ed. teacher)
6. Who regularly participates in making decisions regarding where you receive mathematics instruction?
7. How is the final mathematics placement decision made? (example- Consensus, majority of members voting, other)
8. To what extent have you feel pressured to take a specific mathematics course?
9. Do you feel course options play a role in where you receive mathematics instruction?
10. Do you know what the different mathematics options are that are available for mathematics instruction in your school?

APPENDIX C.1

Administrator Survey Questions

Directions: Circle your responses below

1. Gender: (choose one)

Male
Female

2. I am a licensed an administrator: (choose one)

Yes
No

3. I have worked as an administrator for: (choose one)

less than 1 year
1-2 years
3-4 years
5-10 years
11 or more

4. The number of students at the school where I work is: (choose one)

less than 300	1401-1700
301-700	1701-2000
701-1000	2001-2300
1001-1400	more than 2300

5. The school where I work is located in a/an: (choose one)

Urban Area
Suburban Area
Rural Area

6. The highest level of education I have achieved: (choose one)

Bachelors Degree
Masters Degree
Specialist Degree
Doctorate

7. The average number of IEP meetings I have attended this year is:
(choose one)

less than 5 IEP's

5-8

9-12

13-15

16-20

21-24

25-28

29 or more

8. My race is:

American Indian or Alaska Native

Asian

Black or African American

Native Hawaiian or Other Pacific Islander

Hispanic/Latino

White

APPENDIX C.2

Case Manager Survey

Directions: Circle your responses below

1. Gender: (choose one)

Male
Female

2. I am a licensed special education teacher in the area of: (choose all that apply)

Specific Learning Disabilities
Developmental Cognitive Disabilities
Speech Language
Emotional/Behavior Disorders
Other (please specify)
I am not currently a licensed special education teacher

3. I have worked as an IEP case manager for: (choose one)

less than 1 year
1-2 years
3-4 years
5-10 years
11 or more

4. The number of students at the school where I work is: (choose one)

less than 300	1401-1700
301-700	1701-2000
701-1000	2001-2300
1001-1400	more than 2300

5. The school where I work is located in a/an: (choose one)

Rural area
Urban area
Suburban area

6. The primary disability group/groups for whom I manage IEP's is: (choose all that are applicable)

Deaf	Emotional/Behavioral Disabilities
Deaf/Blind	Specific Learning Disabilities
Developmental Cognitive Disabilities	Speech Language
Orthopedically Impaired	Visually Handicapped
Other Health Disabilities	Traumatic Brain Injury
Autism Spectrum Disorder	

7. The highest level of education I have achieved: (choose one)

BA/BS
Masters
Specialist
Doctorate

8. The average number of IEP's I currently manage is: (Choose one)

less than 5 IEP's
5-8
9-12
13-15
16-20
21-24
25-28
29 or more

9. The amount of the work week that I spend working in the general education setting is about:

100% of the time
75-99% of time
50-74% time
25-49% time
1-24% time
0% (self-contained)

10. My race is:

American Indian or Alaska Native
Asian
Black or African American
Native Hawaiian or Other Pacific Islander
Hispanic/Latino
White

APPENDIX C.3

Mathematics Teacher Survey

Directions: Circle your responses below

1. Gender: (choose one)

Male
Female

2. I have been teaching high school mathematics for: (choose one)

less than 1 year
1-2 years
3-4 years
5-10 years
11 or more

3. The number of students at the school where I work is: (choose one)

less than 300	1401-1700
301-700	1701-2000
701-1000	2001-2300
1001-1400	more than 2300

4. The school where I work is located in an/a: (choose one)

Urban Area
Suburban Area
Rural Area

5. I am primarily responsible for teaching: (choose all that apply)

Basic Math/General Math
Pre-Algebra
Algebra
Geometry
Algebra II
Advanced Math
Other (please specify)

6. The disability group for whom I teach mathematics include: (choose all that apply)

Deaf	Emotional/Behavioral Disabilities
Deaf/Blind	Specific Learning Disabilities
Developmental Cognitive Disabilities	Speech Language
Orthopedically Impaired	Visually Handicapped
Other Health Disabilities	Traumatic Brain Injury
Autism Spectrum Disorder	I do not know

7. The highest level of education I have achieved: (choose one)

Bachelors Degree
Masters Degree
Specialist Degree
Doctorate

8. The average number of IEP meetings I attend each year is: (choose one)

less than 5 IEP's
5-8
9-12
13-15
16-20
21-24
25-28
29 or more

9. In what context does your mathematics instruction take place? (choose all that apply)

Regular Classroom
Co-Teaching (Inclusion)
Resource Room
Self-Contained
Other (please specify)

10. My race is:

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- Hispanic/Latino
- White

APPENDIX C.4

Parent Survey

Directions: Circle your responses below

1. My child has been receiving special education services for: (choose one)

less than 1 year
1-2 years
3-4 years
5-10 years
11 or more

2. The number of students where my child attends school is: (choose one)

less than 300	1401-1700
301-700	1701-2000
701-1000	2001-2300
1001-1400	more than 2300
I don't know	

3. The school where my child attends is located in an/a: (choose one)

Urban Area
Suburban Area
Rural Area

4. My child primarily struggles with: (choose all that apply)

Reading
Math
Writing
Organization
Staying on task
Behavior
Other (please specify)

5. The disability group for which my child receives special education services is: (choose all that apply)

Deaf	Emotional/Behavioral Disabilities
Deaf/Blind	Specific Learning Disabilities
Developmental Cognitive Disabilities	speech Language
Orthopedically Impaired	Visually Handicapped
Other Health Disabilities	Traumatic Brain Injury
Autism Spectrum Disorder	I don't know

6. The highest level of education I have achieved: (choose one)

High School Diploma/GED
Associates Degree/Specialized Training Program
Bachelors Degree
Masters Degree
Specialist Degree
Doctorate
I have not yet completed high school graduation requirements

7. I generally attend IEP meetings: (choose one)

in person
over the telephone
I do not generally attend

8. The amount of time my child spends in the general education setting is about: (choose one)

100% of the time
75-99% of the time
50-74% of the time
25-49% of the time
1-24% of the time
0% (self-contained)
I don't know

9. My child receives math instruction in: (choose one)

General Education Classroom
Special Education classroom
I don't know where my child receives math instruction

10. My race is:

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- Hispanic/Latino
- White

APPENDIX C.5

Student Survey

Directions: Circle your responses below

1. I have been receiving special education services for: (choose one)

less than 1 year
1-2 years
3-4 years
5-10 years
11 or more

2. The number of students where I attend school is: (choose one)

less than 300	1401-1700
301-700	1701-2000
701-1000	2001-2300
1001-1400	more than 2300
I don't know	

3. The school where I attend is located in an/a: (choose one)

Urban Area
Suburban Area
Rural Area

4. I generally struggle with: (choose all that apply)

Reading
Math
Writing
Organization
Staying on task
Behavior
Other (please specify)

5. The disability group for which I receive special education services is:
(choose all that apply)

Deaf	Emotional/Behavioral Disabilities
Deaf/Blind	Specific Learning Disabilities
Developmental Cognitive Disabilities	Speech Language
Orthopedically Impaired	Visually Handicapped
Other Health Disabilities	Traumatic Brain Injury
Autism Spectrum Disorder	I don't know

6. I am currently in the: (choose one)

9th grade
10th grade
11th grade
12th grade
Other (please specify)

7. I generally attend my IEP meetings: (choose one)

yes
no

8. The amount of time I spend in the general education setting is about:
(choose one)

100% of the time
75-99% of time
50-74% of the time
25-49% of the time
1-24% time
0% (self-contained)
I don't know

9. I receive math instruction in a: (choose one)

General Education Classroom
Special Education classroom
I don't know where I receive math instruction

10. My race is:

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- Hispanic/Latino
- White

APPENDIX D

Critical Incident Instrument

Directions: Please respond to the following prompt.

In thinking about the last IEP meeting you facilitated, what were the factors discussed when determining mathematics placement decisions? Who were the participants?