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IDENTIFYING THE BEST PRACTICES FOR THE TWICE EXCEPTIONAL LEARNER

A MASTER'S THESIS

SUBMITTED TO THE FACULTY

OF BETHEL UNIVERSITY

BY

EDISON BOELTER

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS

FOR THE DEGREE OF

MASTER OF ARTS IN EDUCATION

JUNE 2020

BETHEL UNIVERSITY

IDENTIFYING THE BEST PRACTICES FOR THE TWICE EXCEPTIONAL LEARNER

EDISON BOELTER

JUNE 2020

APPROVED

Thesis Advisor: Lisa M. Silmser, Ed. D.

Program Director: Katie Bonawitz, Ed. D.

## **Abstract**

The objective of this thesis is to find the best research-based practices available for the twice exceptional learner. Twice exceptional learners are a growing percentage of the population in the academic community, and yet educators are greatly unprepared to work with these students. Through literary reviewed studies and research, it became possible to identify useful information as to how to educate and prepare teachers to work with twice exceptional learners. These literature reviewed studies and research demonstrated that twice exceptional students need a person-centered approach that is also able to meet their unique social and emotional needs. These literature reviewed studies and research also demonstrated that twice exceptional students who fit into both gifted and special education labels are successful when their areas of special education needs are getting met without hindering the area that makes them gifted. Through Lee's 2019 study, we learn that the state of Colorado implemented a twice exceptional training program that taught educators how to use effective teaching strategies such as RTI, SEM and MPPM. The full breakdown of this training can be viewed in Appendix C. Positive results from this study show that there is a path to incorporate adequate training to educators around the country to work effectively with twice exceptional learners.

## Table of Contents

Signature Page.....	1
Abstract.....	2
Table of Contents.....	3
Chapter I: Introduction.....	5
Definition of Twice Exceptional Learners.....	6
Twice Exceptional History and Protection under the Law.....	7
Categories and Types of Twice Exceptional Learners.....	13
Chapter II: Literature Review.....	19
Literature Search Procedures.....	19
Factors that Affect Twice Exceptional Students' Ability to Learn.....	20
Effective Strategies for Twice Exceptional Learners.....	29
Preparing staff to work with twice exceptional students.....	37
Chapter III: Discussion and Conclusion.....	43
Summary of Literature.....	43
Limitations of the Research.....	48
Implications for Future Research.....	49
Implications for Professional Application.....	50

Conclusion.....	52
References.....	53
Appendix.....	57
Appendix A.....	57
Appendix B.....	60
Appendix C.....	62

## CHAPTER I: INTRODUCTION

As I selected my topic for this thesis, I focused on an area I could throw myself into with a passion. I currently work at a charter school that specializes in educating students who are diagnosed with autism. I really enjoy working with my students and want to go the extra mile to make sure they are getting the best educational experience possible. I began my thesis by researching autism and learning about some of the issues facing the autism community that directly related to my students. I opened up the discussion with some of my students by asking what their biggest obstacles were in an academic setting or if there is a topic they thought I should research. Finally, I came across a term that I had heard before but didn't necessarily know what it was. That term was a "twice exceptional learner." After reading some articles and learning the true definition of the word, I realized that it described the students I worked with perfectly. I quickly realized that I need to learn what the best practices are for these students and how I can better serve these twice exceptional learners. Most importantly, I needed to learn why, in my studies as a Special Education teacher, has this term not been commonly used? There are a good number of students who fall into this category and the way to instruct these students is very important. It can be the difference between harnessing their strengths and creating positive growth or letting their weaknesses take over and creating a negative educational experience. Though this can be true for most students, it can be especially true for twice exceptional learners. My goal in this thesis paper is to identify the best practices for twice exceptional students, explain what school districts are doing to implement these practices and discover how IEPs and gifted programs help educators provide enhanced educational opportunities for twice exceptional learners.

## Definition of Twice Exceptional Learners

To begin, what is a twice exceptional learner? The funny and interesting thing is how many times the definition for twice exceptional learner has changed over the years. The term twice exceptional has been used in many different ways over the years, but the first widely accepted definition came from Maker's 1977 seminal work, "Providing Programs for the Gifted Handicapped." He described twice exceptional learners as the dual diagnosis of individuals who had extraordinary gifts and talents but experienced physical and cognitive disabilities (Baldwin, 2015). In addition, Meisgeier, Meisgeier, and Werblo (1978) acknowledged that gifted students with learning disabilities had a need for both learning support and advanced programming. Over the years, the definition has stayed relatively the same or had a very basic definition attached to it. For example, the state of Colorado is one of the few states to actually have a definition of twice exceptional students for their school districts. The Colorado Department of Education defines it as, "Gifted students include students with disabilities (i.e., twice exceptional)" (Roberts, 2015, P.16). Twice exceptional can further be defined as students who demonstrate gifts and talents but also have a disability. Because of this, they do not fit the stereotypical student that displays characteristics of disability or giftedness (Baldwin, 2015, p.217). Through much of my research in most journals and scholarly articles, it has become evident that there is a basic understanding of what a twice exceptional learner is, however until 2013, there was no widely accepted and clear definition of twice exceptional learners. In November of 2013, the 2e CoP Summit took place at the NAGC National Convention in Indianapolis (Baldwin, 2015). The first and most important priority of this summit was to create an agreed upon definition of what a twice exceptional learner actually is. The official agreed-upon definition of a twice exceptional student is as follows: "Twice exceptional individuals evidence exceptional ability and disability,



which results in a unique set of circumstances. Their exceptional ability may dominate, hiding their disability; their disability may dominate, hiding their exceptional ability; each may mask the other so that neither is recognized or addressed” (Baldwin, 2015, p. 15). The summit also recognized that students who fall into the category of twice exceptional should go through an identification process similar to how special education and gifted learner students are identified. Their solutions are as follows: (a) Recognition and Identification, (b) Programming and Dual Differentiation, and (c) Specialized Support (Baldwin, 2015). Now that we have our official definition, we can see that on a base level the older definitions for twice exceptional learner’s skill are very similar to the official definition. To simplify the definition of a twice exceptional student, it is a student who is gifted in one area and also requires special education services in another.

### **Twice Exceptional History and Protection under the Law**

Twice exceptional learners meet at the crossroads of special education and gifted and talented. These two categories can come to a head quite often and can cause some issues when it comes to funding, understanding, perception and even qualifications. The following discussion will be a brief explanation of what both a special education and gifted and talented student actually are.

The Individuals with Disabilities Education Act (IDEA) defines special education as specially defined instruction (Ralabate, 2008). The law requires states to provide special education and related services to students meeting eligibility criteria under thirteen disability categories (Ralabate, 2008). These thirteen disability categories are: Autism, Blind and Visually Impaired, Deaf and Hearing Impaired, Deaf-Blind, Emotionally Disturbed, Learning Disabled, Mentally Retarded, Orthopedically Impaired, Other Health Impaired, Speech and Language

Impaired (Ralabate, 2008). Discussion surrounding the ways students qualify for special education services is something that will be explained further along in this paper.

Gifted and Talented is defined by the Elementary and Secondary Education Act as “students, children, or youth who give evidence of high achievement capability in areas such as intellectual, creative, artistic, or leadership capacity, or in specific academic fields, and who need services and activities not ordinarily provided by the school in order to fully develop those capabilities (Ralabate, 2008).” Interestingly enough, federal law does not require states or districts to provide educational needs for gifted and talented learners (Ralabate, 2008). According to federal oversight, it is the state and local government’s responsibility to provide educational needs for gifted and talented learners. While this can cause many issues, one of the most important issues is funding. Appropriate funding for education in general can be an issue for many school districts. In the case of gifted and talented learners, they are often left behind as gifted and talented programs are robust in well-funded districts and sometimes forgotten about in under-funded districts (Ralabate, 2008).

Federal laws and mandates are an important factor and indicator of how special education and gifted and talented departments are to be used in school districts but also how they are to be funded. There are many laws that protect special education and gifted students' rights as well as the school district’s responsibility to provide and accommodate these students’ gifts and needs.

As special education law is complex and complicated, this paper will only discuss the beginnings of special education services. The first big event in special education was the Public Law 94-142, The Education for All Handicapped Children Act of 1975. This law mandated a free, appropriate public education for all children with disabilities (Baldwin, 2015, p.210). This later became IDEA (Individuals with Disabilities Act 2004). FAPE, a very important part of

AHCA and IDEA stands for free, appropriate, public, education. FAPE “emphasizes special education and related services designed to meet their (children with disabilities) unique needs and prepare them for further education, employment, and independent living” (Gilman, 2013, p.3). Along with FAPE comes Child Find. Child Find and Eligibility are triggered through reasonable suspicion (i.e., when the school district has reason to suspect that the child may meet the criteria of eligibility) (Zirkel, 2020). Child Find allows schools to proceed ahead to obtain consent for the evaluation of the child within a reasonable period of time. The IDEA legislation and regulations have more clearly established two essential prongs for eligibility: (a) meeting the criteria for one or more of the identified classifications in the IDEA, such as specific learning disability, and (b) having a resulting need for special education (e.g., IDEA, 2017, § 1401[3]) (Zirkel, 2020). In summary, FAPE and Child Find help determine if a student is eligible for special education services and make sure that the testing and any identified needed services are available to the family at no cost. As mentioned, this all leads into IDEA 2004. The IDEA or Individual with Disabilities Education Act of 2004 creates more concrete language for special education and its provided services. Within IDEA, it is important to note that schools must abide by “least restrictive environment” or LRE. LRE is not a place; it is a principle that guides school districts in providing an environment and program for students. LRE states that students should be learning with their peers in a classroom environment as much as possible (Morin, 2019). Additionally, IDEA established some procedural safeguards such as laying out the process and steps that schools and parents go through for evaluation and IEP meetings and dispute resolution (Rosen, 2019). IDEA is truly a “one stop shop” for those needing to reference how to execute special education services. Educators, administrators, and parents can utilize IDEA for important information about special education services and programs.

The laws and provisions that define gifted and talented services and rights is a fairly gray area. It wasn't until the mid-1970s that federal legislation offered definitions for the terms "learning disabled" and "giftedness" and provided guidelines for meeting the educational needs of students thus identified (Baldwin, 2015, p. 210). In 1978, The Gifted and Talented Children's Education Act was passed. This act identified six areas of giftedness: general intellectual ability, specific aptitude, visual and performing arts, creativity, leadership, and psychomotor abilities (Baldwin, 2015, p. 210). Although there is a federal act that identifies gifted students, because qualifications and expectations are left in the hands of individual states, gifted guidelines and programming vary greatly between school districts. For example, Minnesota uses the following gifted guidelines prescribed in 388.1092 Definitions. Sec. 2. As used in this act: (a) The "gifted and/or academically talented" means elementary and/or secondary school students who may be considered to be (1) intellectually gifted, (2) outstanding in school achievement, and/or (3) those who have outstanding abilities in particular areas of human endeavor, including the arts and humanities. (b) "Education for the gifted and/or academically talented" means a school program, whether of an enrichment, an acceleration, an individualized instruction, or a special grouping nature, that provides for educational opportunities commensurate with the abilities, achievements, or special needs of the gifted and/or academically talented students. (c) "Commission" means the advisory commission on education for the gifted and/or academically talented (State Definitions of Giftedness, n.d.). It has become abundantly clear while I researched twice exceptional learners that gifted students are at a serious disadvantage in regards to funding and meeting the needs of these gifted students through programming. Some school districts excel at providing opportunities for gifted learners and unfortunately, some do not. Gifted learners in under-funded districts or districts that are not familiar with how to serve these learners are at a

serious disadvantage compared to their peers from better funded and more experienced school districts.

There is also a gray area when it comes to twice exceptional students and they are protected by federal or state laws and how they are provided with adequate support and tools to succeed in their education. In the 1980's, The Association for the Education of Gifted Underachieving Students (AEGUS) was focused on advocating for underachieving gifted students, especially those with learning and emotional needs. Likewise, the National Association for Gifted Children (NAGC) created a division focused on special populations of gifted students, including those with disabilities (Baldwin, 2015). In the 1990's, several other organizations and projects were developed aimed at the advancement of gifted and twice exceptional students they include, the National Research Center for the Gifted and Talented, The Twice Exceptional Child Project and Project High Hopes (Baldwin, 2015). In 2004 IDEA, the mention of students with disabilities who may also have gifts and talents (twice exceptional) was noted for the first time with the priorities of providing funding (Baldwin, 2015). The history of law for gifted and talented students is unfortunately very thin. It is clear that more needs to be done to provide further state and federal rights and provisions to gifted and talented students.

In 2015, forty-two gifted and special education administrators and state gifted association leaders completed a survey by Roberts (2015), for the purpose of learning how different schools, staff, and states were prepared to work with twice exceptional learners. Responses were gathered from participants submitting responses by email or telephone about their twice exceptional learners (Roberts, 2015). Of the people surveyed, only ten respondents reported that their states included a definition of what a twice exceptional learner is. Survey responses also indicated that twice exceptional learners and their needs were not addressed in legislation or policy in most

states. Most states described gifted and special education identification procedures as non-discriminatory. Of the 200 official survey documents, twice exceptional students have more often been included in gifted education legislation (11 out of 30 states for which gifted education legislation documents were located) than in special education legislation (seven out of 46 states for which documents were located). Eleven states (out of 18 for which documents were located) included twice exceptional students in gifted education policy, and only two states (out of 16) included twice exceptional students in special education policy (Roberts, 2015).

The facts and information from this survey really drives home the point that there is no consistency with twice exceptional learners. In my research, I have begun to understand that educators and administrators do not necessarily know where these students should belong or where these students should be getting the most attention and funding. Coleman, 2015, explains that national policy states in clear, unambiguous terms that twice exceptional students are due the same interventions as any child with special needs and extensions due to any child with gifts and talents (Coleman, 2015, p. 254). As evidenced from the survey, this isn't happening on a consistent level which is a disservice to twice exceptional students that deserve education that caters to their special education needs and gifts.

### **Categories and Types of Twice Exceptional Learners**

It has now been established that the field of twice exceptionalism grew out of the merger of two lines of inquiry—special education and gifted and talented education (Baldwin, 2015). To receive special education services, students need to demonstrate a significant deficiency in one or more of the thirteen disability categories recognized under IDEA as previously stated. To be eligible for gifted services in the academic areas of reading, math, science, or social studies, a student would need to score in the 95<sup>th</sup> percentile on state- approved tests (Mayes, 2016). Now

we know what a twice exceptional student is but what does that actually look like in the classroom? How do we categorize twice exceptional students and what are the main types of twice exceptional students? Overall, it is fairly complicated to identify twice exceptional students. When identifying these students, there needs to be a system set up with educators or administrators that have expertise in identification of giftedness as well as expertise in special education identification. It is also important in this system to have knowledge that these students can overlap in different areas and one area may manifest itself in a greater capacity. Today, experts suggest that twice exceptional students can be broken down into three categories (Ralabate, 2008).

The first category of twice exceptional students is a student that has been formally identified as gifted, but has not been identified as having a disability. Overall, the giftedness masks the disability (Ralabate, 2008). In this categorization, the student's gifted quality overpowers the student's disability to such a degree that disability may not be able to be identified by a special educator for an evaluation. These students are often seen as underachievers or lazy. They are also often perceived as lacking motivation or a low self-concept. These students can often maintain grade level expectations until the grade level material becomes much more difficult. This stage typically happens in middle school or high school (Ralabate, 2008).

The second category of twice exceptional students is a student who is formally identified as having disability but not identified as gifted (Ralabate, 2008). This is where the disability is so prevalent that it masks any of the giftedness a student may have. These students are usually involved in programs, services and instructions that are focused solely on remediation or compensation for the disability. These students have significantly underestimated intellectual

abilities due to poor assessment that yielded lower than average IQ scores. These students may often become bored and complacent in special education programs if the special education services do not present a challenge to the students. At times, this student can be misdiagnosed as having an emotional disability (Ralabate, 2008).

The third category of twice exceptional learners is students who do not formally identify as either gifted or disabled. This is essentially when the giftedness and disability mask each other to the point that neither giftedness nor disability stands out. These students usually achieve at grade level and are assumed to have average abilities. These students struggle as curriculum becomes more challenging and are viewed as performing within expectations. As a result, these students never receive a special education referral. Unfortunately, this student can have deflated achievement and standardized test scores due to the disability and may not qualify for gifted education services (Ralabate, 2008).

Within these three categories of identification, there are many different types of twice exceptional students. There are six prevalent and well-researched types of twice exceptional learners that will be discussed in this next section. The categories above paint a broad brush stroke in terms of identification, whereas the types about to be discussed meet a more specific criterion. It is heavily implied by Ralabate (2008) that each type of twice exceptional learner can be seen as a subset of the three categories discussed.

The first type of twice exceptional learners is the Gifted Students with Physical Disabilities. Students with even the most extreme physical disabilities may be classified as gifted and in need of appropriate education services (Ralabate, 2008). A student may have a physical disability but still need appropriate educational opportunities to challenge the mind and further learning. A good example of someone who falls into this category is Stephen Hawking, the



Nobel Prize winning physicist who has ALS. Though he has a physical disability, he was a genius in the field of physics.

The second type of twice exceptional learner is the Gifted Student with Sensory Disabilities. Sensory disabilities can include students being hearing impaired, blind, or any disability that can affect how a student gathers information with their senses. With educational settings becoming more and more inclusive, it is more prevalent that these students will be required to have both gifted and special education accommodations ready within a general education setting (Ralabate, 2008). A famous example of a student like this would be Helen Keller, who was deaf and blind but had a gifted mind and eventually graduated from Harvard.

The third type is Gifted Students with Asperger's Syndrome/Autism Spectrum Disorder. Asperger Syndrome is generally considered to be a disorder that falls along the autism spectrum and is characterized by language and social impairments (hence, often referred to as high functioning autistics). Aside from their deficits in social functioning, these students are marked by a greater passion for acquiring knowledge and advanced skills in a variety of areas. (Ralabate, 2008). An example is Dr. Temple Grandin, Assistant Professor of Animal Science at Colorado State University and accomplished author and designer of animal facilities, who has written of her experiences as an individual with autism (Ralabate, 2008). A more current pop-culture example would be Michael Burry who was portrayed by Christian Bale in the 2015 film *The Big Short*. Burry was a hedge fund manager who was one of the first to recognize and profit from the mortgage crisis of 2008 (McKay, 2015).

The fourth type is Gifted Students with Emotional and/or Behavioral Disorders. Reviews of the literature on the social-emotional aspects of giftedness indicate that gifted students are no more or less likely than their non-identified peers to experience emotional or psychosocial

difficulties. These students are often not getting the educational opportunities they need as there is much more focus on their disruptive behaviors and stopping those behaviors rather than identifying their potential giftedness (Ralabate, 2008). A famous example of this is Princeton University professor and Nobel prize-winning mathematician John Nash Jr., who has struggled with schizophrenia and was the main character in the academy nominated “A Beautiful Mind.” John Nash is an example of a gifted individual who has an emotional disorder (Ralabate, 2008).

The fifth type is Gifted Students with Attention-Deficit/Hyperactivity Disorder. Gifted students with ADHD may demonstrate difficulty with focusing their attention, completing their work, following directions, and organizing their school materials or assignments. (Ralabate, 2008) At the same time, these students show similarities with their gifted peers by having advanced abilities and high performance capabilities, especially when the student is interested in the topic and is faced with challenging tasks. A famous example of this is Nikola Tesla, a foremost inventor who helped usher in the age of electrical power in 1887 with his patent on alternating current motors. He would also be characterized as having ADHD today (Ralabate, 2008).

Finally, the sixth type of twice exceptional learner is the Gifted Students with Specific Learning Disabilities. These learners make up the largest percentage of twice-exceptional students. These students are gifted and also have a specific learning disability such as dyslexia or expressive language disorders (Ralabate, 2008). While these students are gifted, it does not immunize them against disabilities that impact learning. Many students that fall under this type of exceptional learner are never identified because their areas of strength and weakness play against each other and students end up with average performance. When an educator is evaluating these students, they appear to not need gifted or special education services. The

learning disability reflects a significant departure from the child's progress in other areas. It is resistant to intervention (most disabilities are lifelong), although gifted children respond more quickly to interventions than less advanced children, and later accommodations may be minor (Gilman, 2013). Probably the most famous individual who was gifted and had a learning disability was Albert Einstein who gave the world the theory of relativity even though he struggled to learn how to read (Ralabate, 2008).

My research question is to find the best practices for twice exceptional learners. Twice exceptional students are a relatively new phenomenon recognized in the realm of education. Twice exceptional learners are often overlooked and their needs are rarely met. My goal is to find out why that is. As well as find out what strategies, models and other practices currently exist that have been proven to help twice exceptional learners succeed in a school setting.

## **CHAPTER II: LITERATURE REVIEW**

### **Literature Search Procedures**

Chapter II of this thesis will examine the factors that affect twice exceptional learners' ability to learn and how teachers and schools have made an effort to address these learning needs. There will also be suggestions on how school districts and educators can make an effort to enhance efforts to meet the gifted and special educational needs of twice exceptional learners.

To locate literature reviews for this thesis about twice exceptional students, reviews and scholarly articles were obtained from the Bethel University Library, CLICS Research, SAGE Journals, and acquired literature provided by the principal of Lionsgate Academy who happens to specialize in twice exceptional learners. The narrowing down of lists was done by searching empirical studies, peer review studies and text books by finding articles that meshed well with the guiding question. The key words used in searches included "strategies twice exceptional students", "professional development twice exceptional students", "struggles twice exceptional learner" and "twice exceptional learners". Over the course of this chapter, the research will be broken down into categories to help gain a better understanding of how to effectively help twice exceptional students. The following categories will be addressed: what factors affect twice exceptional student's ability to learn, what are effective strategies that educators can use (both social emotional and practical), and how have educators been trained on how to effectively use these strategies with twice exceptional students.

#### **Factors that Affect Twice Exceptional Students' Ability to Learn**

Twice exceptional students are in a different world when it comes to the factors that affect their ability to learn. Gifted and special education students each have their own assortment

of difficulties and struggles that prevent them from learning. When putting the two together to create our wonderful twice exceptional students, it can be a whole new list of struggles students may have to deal with. When it comes to educators working with these students, educators must know what factors are at play and affecting students before educators are able to use any strategies to meet the needs of twice exceptional students. Characteristically speaking, twice exceptional students are considered to be creative, excel in tasks requiring abstract concepts, display strong task commitment when the topic has meaning and are often very analytical thinkers (Mayes, 2016). Some of the more common negative characteristics that are common in twice exceptional students are difficulty memorizing isolated facts, anxiety, depression, emotional behaviors, poor organization, poor motivation, withdrawal, shyness, and a discrepancy between out of school talents and classroom performance (Mayes, 2016). When a student's characteristics are identified, it can be a big component as to how and why students may succeed or struggle in an academic setting. Through research, a pattern emerged that can show the different patterns there are that can affect the ability to learn on a twice exceptional student. It can be determined that these patterns can be further simplified into three categories: academic needs, social emotional factors, and strengths of the student.

The first category that can affect the twice exceptional students' ability to learn is the effort, time and care the teachers and the school system put into addressing twice exceptional students' needs. The effect that both the teachers and the school system have on any student is a big factor in how students learn. In particular, for twice exceptional students, the effects can be far-reaching and play a much bigger role in these students' successes and failures. When I analyzed several studies, it became clear that the more effort and training teachers and the schools put into identifying twice exceptional students and their needs, the more they can

provide appropriate accommodations for twice exceptional students to succeed. Roberts (2015) found that student outcomes, high-stakes testing, and teacher accountability tied to these statistics may make general education teachers hesitant to have twice exceptional learners in their classrooms. The number of students qualifying for special education under IDEA (2004) is collected in child count and educational environment data. This data is used to hire faculty and staff, fund programs, and hire consultants (Roberts, 2015). Overall, schools get more funding and better staffing for special education students than they do for gifted and talented students. For students that need gifted services, this does not necessarily seem fair. By ignoring (intentionally or not) twice exceptional student's strength and giftedness, schools don't have to devote resources and staff to this part of their abilities. Schools, it would appear, would rather focus on a twice exceptional student's disability, partially due to the fact that the federal mandate is far stricter and clear cut for special education services and the funding that is received, where gifted services are not. According to Gilman, this could also be because of "some IDEA loophole as FAPE cannot be guaranteed for twice exceptional students if fiscal limitations, in the wake of a recession, motivate states to limit costly assessment and services to the extent that the civil rights of some students are compromised" (Gilman, 2013, p.3).

Mayes (2016) conducted a diverse study of 152 students that would be considered twice exceptional students. The study was aimed at finding the reason twice exceptional students may struggle in school. In the study, nearly every student participant shared multiple stories about how their teachers and IEP tutors were unaccommodating to their special needs despite them having IEPs indicating requiring accommodations and supports. Several students also shared that teachers' lack of accommodations were seen as rude and hostile (Mayes, 2016). Upon reviewing answers from parents, the study found that all parents shared sentiments that some teachers and

school staff were not accommodating to their child's special needs (Mayes, 2016). Students in the study also saw limited time with school counselors. Student study participants had limited or no interactions with the school counselors and school psychologists. There were two students from the study that did report negative experiences with a counselor (Mayes, 2016). Most students did know they were able to schedule time with a student counselor, however most thought it was not needed until high school (Mayes, 2016).

The most common issue the students and parents expressed in the study was wanting a positive experience with their teachers and getting the desired support they needed. The majority of the student participants wanted teachers to build positive relationships with them, rather than having students attempt to create the relationships themselves. They wanted educators to understand and help them to be successful in school (Mayes, 2016). Students wanted educators to be sensitive to their needs as learners as well as challenge them academically with more opportunities for learning and college preparatory courses. Parents also echoed the students' desire for more support, specifically toward their special needs, but also wanted greater support outside of school from individuals (Mayes, 2016). The students defined supportive teachers as teachers who took the time to build a positive relationship and invested in their overall success as a student and person (Mayes, 2016). Students, as well as parents, expressed feeling that some educators were invested and felt responsible for their overall success. Students and parents also expressed their appreciation for educators' ability to advocate on their behalf (Mayes, 2016).

To help combat this, educators must have a strong sense of self-awareness when it comes to their instruction. Teachers are responsible for teaching students how to take responsibility for their education. This can be done by helping the student define their learning goals and putting systems in place to help them monitor those goals (Coleman, 2005). Teachers must facilitate a

way for students to find a deep understanding of facts and ideas as well as be able to organize these facts and ideas in a way that creates retrieval and application of this information (Coleman, 2005). It is very important for educators to build student knowledge; students come to class with many different preconceived notions of how the world works which if not engaged can make it difficult for students to learn new concepts (Coleman, 2005). It is key that the teacher creates an engaging environment where students learn to use information beyond what is on a test but actually provides students with practical real world application (Coleman, 2005). In the book, *The Twice Exceptional Dilemma*, it summarizes the effects that school and administration can have on a twice-exceptional student's ability to learn. Ralabate (2008) states that, "Educators, administrators, school board members, community decision-makers, and NEA local Association leaders all have a stake in whether students who are twice-exceptional are appropriately educated" (p. 15). Twice exceptional students may go undiagnosed as either gifted, disabled, or both. Due to a lack of appropriate educational programming that addresses both components of giftedness and disability, these students may be underachieving and their underachievement can affect the school and community in significant ways (Ralabate, 2008). It has become clear that some kind of testing or identification process needs to be created to help educators understand and provide a clear pathway for twice exceptional students to get the appropriate education they deserve.

Being a twice exceptional student is a very complicated experience. For these students, it can truly be an emotional roller coaster. These students are constantly dealing with highs that come with being gifted and the lows of being in special education in regards to social stigma and overall difficulty in learning. Baldwin states, "It is common for the academic self-concept of twice exceptional students to be very low as they often see themselves as imposters or as



inadequate (Baldwin, 2015, p. 223)”. It has been noted by researchers that it’s very common for twice exceptional learners to have high levels of anxiety, poor self-concept, and anger because of the discrepancies between what they can and cannot do (Baldwin, 2015; Baum & Owen, 2004; Reis, 2014; Schiff, 1981). This creates what many in the field consider being the biggest factor that affects a twice-exceptional student's learning and that is social emotional health.

Lovecky (2004), a clinical psychologist and author of *Different Minds: Gifted Children with ADHD, Asperger Syndrome, and Other Deficits*, notes that gifted students with disabilities need intervention earlier in their schooling for a variety of programs. This intervention needs to continue even if they score above grade level (Gilman, 2013, p. 8). For example, twice exceptional students diagnosed with ADHD will need accommodations and remediation of executive function deficits, including writing skills (Gilman, 2013, p. 8). In another example, children with Autism Spectrum Disorder often have greater need with executive functions, processing speed, written expression, and social and emotional deficits (Gilman, 2013, p.8). According to Nielsen (2002), gifted students with learning disabilities can become extremely frustrated in school and quickly give up on tasks. They can become fearful of taking academic risks, have difficulty with fine and gross motor skills, which can result in motor difficulties and poor handwriting (Weinfeld, 2002) and have low self-esteem, which is often masked by inappropriate behaviors (Baum & Owen, 1988).

With these examples, there is a pattern indicating twice exceptional students require extra time to process when completing classroom activities or homework (VanTassel-Baska, 2012). Additionally, twice exceptional students are known to have a faster burn out rate because of the compensation demands (Gilman, 2013). In this case, compensation demands relate to the student's disability. Oftentimes students with disabilities feel the need to pretend their disability

isn't there or that they mask it in some way which creates this compensation. This in turn can take its toll on the parents due to the fact that these students require a greater level of parent support just to keep up with their classes (Gilman, 2013). Overall, therapeutic interventions such as reading interventions, occupational therapy, and vision therapy are needed to prevent years of academic struggle (Gilman, 2013). The potential for struggle is what creates such a great need to provide and develop twice exceptional students' social emotional health.

Assouline (2010) administered a battery of tests to 75 gifted students with learning difficulties or severe social impairments to assess academic talent and confirm or rule out disability. Assouline (2010) found that when negative experiences in academic, social and personal areas continue to go unresolved, twice exceptional students are at extreme risk for low academic achievement and resilience (Foley Nicpon, 2011). This study was used to help set up a study done by Mayes (2016) in which has been discussed above. This diverse study was also able to find out a lot about twice exceptional students and the social emotional factors that affect their ability to learn. For many students in high school, the future can be scary. Seventy-five percent of the students in this study expressed concerns about their ability to be successful in high school and beyond. This concern was echoed by the parents of the study and they feared the implications this could have on their child's ability to persevere through this uncertain time (Mayes, 2016). To go along with fear of the future, many of the participants expressed the desire to disassociate with the label of special education, even though it is in the context of twice exceptional and also being gifted. The reason for this was many students saw the special education identification as being seen as "dumb, slow, and many felt like it was difficult to describe how they felt when initially getting that label" (Mayes, 2016, p. 177). Many saw it as a reason they were picked on with 87% reporting they have been picked on due to their special

education label (Mayes, 2016). Since we are talking about twice exceptional students, many would rather be seen for their gifts rather than their struggles. Students in the study used terms like special, happy, and being described as gifted showed an increase in self-esteem and self-confidence as both described by parents of the students and the study itself.

Another social emotional factor that is at the forefront of twice exceptional learners and their ability to learn is bullying. Bullying for any student, whether based on neuro-typical qualities, special education placement, gifted qualities, or in this case, twice exceptional, can be an extremely negative factor on social emotional health. Ronksley-Pavia (2019) conducted one of the few existing studies for bullying and twice exceptional students. The study qualified bullying as “another child or group of children negatively targeting them through verbal abuse; taunting, name calling, teasing, deriding them to their peers, or in front of their peers; and/or being physically abused: man-handled, punched, kicked; vandalism of personal property; and being excluded and ostracized” (Ronksley-Pavia, 2019, p. 19). Students in the study described being bullied by peers including name calling, verbal and physical abuse, excluding and ostracizing. Many students also reported being bullied by teachers. Bullying by teachers can come in the form of being singled out in front of peers, being yelled at, being humiliated when teachers insult their work, or having teachers look down on a student for their disabilities. For twice exceptional students, this can create a feeling of isolation (Ronksley-Pavia, 2019). Additionally, peers may distance themselves from those students out of fear of being bullied by association. This can cause more victimization due to the fact that these students can become more vulnerable to being isolated and lacking peers and friends that they can socialize with (Ronksley-Pavia, 2019).

Bullying can have a strong negative emotional effect on a child. Although it isn't made clear from the data of the study, many of the students expressed that it is one of the reasons they are scared or have anxiety about going to school. This also creates an isolating factor for students and causes difficulty with peer interaction and trying to make friends (Roberts, 2015).

Interestingly, students from the study revealed that they did not find all of the bullying to have a negative effect. The study found that "participants had protective factors that acted to mediate some of the negative experiences, such as extensive support networks; external factors that the participants acknowledged as supportive. Likely sources included like-minded friends, parents, some teachers, counselors/psychologists, and out-of-school social networks (e.g., youth group)" (Ronksley-Pavia, 2019, p. 31). Protective factors play a huge role in a student's ability to bounce back from the setbacks and terrors of being bullied. These protective factors can help encourage students to continue to attend school, continue to participate in activities and develop a student's abilities to manage stress and stressful events (Ronksley-Pavia, 2019).

The final and most positive factor is using twice exceptional learners' strengths as a way to enhance their ability to learn. Finding out what students like and what they are good at is the key to finding positive ways to affect a student's ability to learn. There are several different ways to find out student strengths. Strengths can be found through student, parent and previous teacher interviews. It can be done through both observations and anecdotal information. It can be done through student checklists or simple student interest forms (Baldwin, 2015). Qualification and participation in gifted programs does not necessarily shield a student from the struggles of academics. Therefore, educators must still take the time to learn how students learn best and what motivated them. When strengths play to gifted students, educators are far more likely to promote positive development in academics, socio-emotional attributes, and professional skills

(Mayes, 2016). Focusing on a student's shortcoming is no way to make progress. Everyone has strengths and things they are good at; it simply needs to be highlighted in order for students to succeed.

There are five factors underlying students' growth: psychological safety, tolerance for asynchrony, time, positive relationships, and the consistent use of a strengths-based, talent-focused philosophy (Baum, 2014). Further research suggests that there are three overarching guidelines for creating classrooms where twice exceptional students feel safe, valued and accepted. The first guideline is to collect data to gain a better understanding of students. This requires the educator to find students strengths, talents, interests and hobbies. This allows material to be tailored to students' talents and interests as well as differentiate strategies and materials that directly relate to students (Baum, 2014). The second is to actually address student deficits. Though working on strength is really important, deficits do need to not only be addressed and identified by the educator, but also improved on so students can work on these deficits and use them in application (Baum, 2014). Finally, twice exceptional students tend to develop skills in a nonparallel fashion and intermittently, rather than a typical linear pattern. Therefore, progress should be measured over a longer period of time than the usual standard in order to measure grade level performance (Baum, 2014; Bianco, 2010).

### **Effective Strategies for Twice Exceptional Learners**

In summary, the three factors that affect a twice exceptional student's ability to learn are social emotional needs, academic needs and utilizing student strengths. Next, the researched effective strategies that have been proven to help twice exceptional students break through learning hurdles will be discussed. There are two categories of strategies to assist with twice

exceptional learners in the classroom. Those are social emotional/strength based strategies and concrete academic strategies.

Research tells us that it is increasingly difficult for students to grow and succeed in their academics if their social and emotional needs are not being met. A study from Baldwin (2015) addressed that when exploring strategies for twice exceptional students that teachers must take into account not only the academic side of things but also the social emotional, safe and problem solving culture that clearly places value on the student. Part of creating a safe and nurturing environment for twice exceptional students is to help them feel comfortable, which will allow the students to be more open to addressing their areas of need (Baldwin, 2015). Baldwin (2015) further explained that twice exceptional students require a dual approach to learning which means that the educator needs to not only focus on the student's strengths, but also needs to address the student's disability and utilize interventions. However, Baldwin states that educators must address strengths first as it will assist with building a student's confidence and rapport with the educator. There are many tools that educators and parents can utilize that will benefit their students in the classroom.

One tool that can be used to find areas of strength, need, and comfort is called the *Scales for Rating the Behavioral Characteristics of Superior Students* (Renzulli, 2010). This scale measures students' characteristics in the following areas: Learning, Creativity, Motivation, Leadership, Artistic, Musical, Dramatics, Communication, Planning, Mathematics, Reading, Technology, and Science. These scales help identify strengths for gifted students by comparing students to their peers based on observable behaviors. The higher the student scores on certain behaviors, the more likely they are to be gifted. Interest-Alyzer Family of Instruments (Renzulli, 1997) is used as an informal observation of the ways the student approaches or struggles during

specific academic tasks can also be very helpful, and can be done by teachers or other faculty members. Gilman (2013) is of this same belief but goes a little further in believing that using therapeutic intervention is the key. Adding that therapeutic intervention early on creates a greater chance of limiting the need for classroom accommodations for the student later on in life.

The goal with finding appropriate social emotional strategies is to foster student growth. In a Baum (2014) study, students acknowledged that their emotional behavioral growth was largely due to having a closely connected community that was highly supportive of one another. These students stated that this allowed them to feel more comfortable with one another and created more social growth (Baum, 2014). Baum also goes on to state that a student's cognitive growth is extremely important in shaping their social growth. Positive cognitive growth allows students to become more productive, especially when teachers are taking advantage of students' interests. Having strong cognitive growth can also allow students' efforts and good academic behaviors to extend beyond their interests to subjects they have struggled with in the past (Baum, 2014). Baum also states there are five factors that contribute to a student's overall growths. Those factors are: a psychologically safe environment, time, allowing students to go at their own pace and not rush, tolerance for asynchronous behaviors, positive relationships with those in their lives and around them, and a strength/talent based environment which allows students to create awareness of their individuality. A similar study by Wu (2019) echoes a very similar sentiment noting that "Providing flexible curricula and accommodating educational provisions, the teachers in this study used a strength-based approach that highlighted students' competencies and personal responsibilities. Studies have revealed that students could manage their own behaviors and actions more efficiently and responsibly when they have a strong sense of personal investment".

When discovering these students' emotional needs and strengths, time can be a factor for educators. Evaluations and studies should be done in a timely manner so schools are able to offer proper accommodations and interventions sooner rather than later. It is important to collect a variety of information including health, vision, hearing, social and emotional status, general intelligence, academic performance, communicative status, and motor abilities. Information from parents is needed to understand the child's current situation, as well as psychosocial, health, developmental history, and area of suspected disability but also all areas related to the suspected disability (Gilman, 2013). These assessments are needed to help identify students' areas of strengths, weaknesses and emotional states to allow teachers and districts to provide the most accurate services possible for twice exceptional learners.

There are many great strategies and models for using interventions with twice exceptional students. The first and most commonly used model for using intervention is called "Response to Intervention" or RTI. Response to Intervention is an early model for using intervention that is made in conjunction with the general education classroom. It is designed to help identify students who may need special education services or accommodations (Fuchs, 2003). The Response to Intervention model was not originally developed with gifted children in mind and the rules it established for gifted students have been largely overlooked, especially in federal legislation (Gilman, 2013). Further research into Response to Intervention has come to the conclusion that Response to Intervention has become an effective model for all students' special education, gifted and twice exceptional students alike (Adams, 2013). Response to Intervention is designed to revolve around a collaborative, multitier, problem solving intervention process with ongoing monitoring to take aim at preventing what are known as historically underserved students from failing in school (Crepeau-Hobson, 2013). Furthermore, RTI promotes a teaming



within its philosophy and implementation design (Coleman, 2015). The goal of RTI is the early intervention early intervention of students to find solutions to student challenges and deficits (Crepeau-Hobson, 2013). RTI arranges these supports and services over “across tiers that vary in levels of intensity and individualization (Crepeau-Hobson, 2013).”

Access to these tiers is dynamic, determined by a team involved in the data-driven decision making to match students with appropriate support and services (Coleman, 2015). This multi-cross tiered model consists of three to four level tiers of support all providing varying levels of intensity. Tier one takes into account the quality of instruction in a general education setting accompanied by a universal screening. This is aimed to see if the student is meeting grade level expectations, if not then further support and intervention is assessed (Crepeau-Hobson, 2013). Tier two is aimed at providing a small group atmosphere. This group focuses on instruction in the student’s area of need accompanied by supports. This will still take place in a general education setting. Throughout this time students are still being monitored and assessed. If a student is still not responsive to tier two intervention, then further steps are taken (Crepeau-Hobson, 2013). This leads into tier three, which is analyzing data and specialists are provided. If a student gets to tier three, students are more often than not referred to special education and that process begins (Crepeau-Hobson, 2013). The tables provided by (Crepeau-Hobson, 2013) show great examples of what the RTI model looks like in action as seen in Appendix A. Colorado, a leading state when it comes to providing support for twice exceptional learners, is a big advocate for the Response to Intervention model stating that “RTI is a framework that promotes a well-integrated system connecting general, compensatory, gifted, and special education in providing high quality, standards-based instruction and intervention that is matched to students’ academic, social-emotional, and behavioral needs” (Colorado Department of Education, 2008, p. 3).

Another model for using intervention commonly used for a twice exceptional student is the “Multiple Perspectives Process Model” or MPPM. The Multi Perspectives Process Model is designed to be student centered. This model is heavily based on collaboration and creating a strong team based around the student. This greatly encourages school staff to collaborate with the student, their families and other professionals to bring in different perspectives to effectively help the student grow and succeed (Coleman, 2015). Taking the student centered approach, the team works together in a number of different ways. The first and most important consideration is the student’s gifts, talents and interests. It is very important that at the beginning of each school year, the teacher takes time to acknowledge students’ skills and differences. Twice exceptional students can be difficult to teach because their giftedness goes unnoticed in favor of the disabilities and learning deficits they possess (Winebrenner, 2003). Next, it’s important for the team to take into consideration the students’ different learning styles. Some research has shown that with twice exceptional students it may be helpful to teach the student the concepts first and focus on the details second (Winebrenner, 2003). Winebrenner also researched and showed Survey and Question Strategies as an effective learning strategy. For example, Winebrenner recommends,

“Watching a video before and after studying a novel or other unit of work, hearing a story read aloud before reading it individually, and working from graphic organizers that fit on one page so that students can see the entire unit content, provide color-coded notebooks by subject areas and two sets of texts, one that can be kept at home. Teach students to organize their lockers, desks, and supplies. Help students learn to use an assignment notebook or personal desk assistant to keep track of assignments and long-term projects (p.134).”

The next thing the special education team needs to take into account is the students' social and emotional readiness. It is very common for twice exceptional students to have high anxiety and oftentimes display socially and emotionally immature behaviors. It is the team's job to recognize that these factors do not necessarily contribute to the students' ability to meet grade level expectations (Coleman, 2015). In addition, it is imperative that the students' disabilities are understood with their families as they approach their home setting outside of school. Families need to understand what the neurological, psychological, and physiological manifestation of their child's disability is and how they can positively and proactively address it. Families that positively address their child's disability combined with the school's approach have been proven to have more effective outcomes for students (Coleman, 2015).

Next is the family context itself and Coleman (2015) describes it best explaining that "families of twice exceptional students have often had difficulties in school. The resulting parental anxiety, lack of confidence in dealing with staff, and concern about their child's future success can have a negative effect on a student's performance." It is important for school staff to teach parents and students appropriate short term goals that can help lead into the student's larger goals as well as show planning and trust within the team (Winebrenner, 2003). Lastly, with the Multiple Perspectives Process Model it is important for teachers to get the professional development they need to help ensure they can meet the student's needs. Not only that but if this model is used, staff and teachers should consistently be going over and learning any updates of the models so that it can be mastered and used properly (Coleman, 2015).

The final model we will cover is the School Wide Enrichment Model, otherwise referred to as SEM. SEM is used to provide services that include enrichment, acceleration and talent

development both in and out of the schools' current academic curriculum (Baum, 2014). Twice exceptional students are known to thrive in SEM programs because SEM programs allow students to hypothesize, critique and create. It helps twice exceptional students who struggle with executive functioning and self-regulation gain more how to learn skills. SEM goes on to help twice exceptional students who struggle in reading and in writing because data gathering and productivity are authentic to the discipline and tap into the talent areas of the students (Baum, 2014). The SEM model uses a three step approach to learning, where it is referred to as "types." Type one uses experiences to engage students' interests and content context (Baum, 2010). Using field trips, film and audio are common examples of type one activities. Type two of the SEM model is purposeful articulation of targeted skill instruction within the context of the topic. These skills include "learning how to learn" (executive functioning and self-regulation skills), critical and creative thinking, communication skills, effective learning (emotional regulation), and skills of the discipline (Baum, 2014). Type two skills can be achieved through experiments, creating models, projects and performances (Baum, 2010). Type three is the authentic portion of the model. It allows students to authentically communicate what they have learned through different avenues; it is taking the skills they have learned and taking what they have completed in type two and putting it to practical use (Baum, 2010, Baum, 2014). The table from (Baum, 2010) demonstrates how the SEM model would look in the context of a unit plan seen in Appendix B

Next, solutions educators can use in the classroom to enhance the education experience for twice exceptional learners will be discussed. Unfortunately, for most, they relied heavily on either a student's giftedness or their special education needs. The three strategies explained in great detail above are the exceptions. They were the most frequently seen and through the research and data have proven to be the most effective.

### **Preparing staff to work with twice exceptional students**

We have now established that working with twice exceptional students can be challenging. It takes a plethora of knowledge on the topic and there are particular strategies that work well for these students. As an educator, I feel that it is imperative for me to know how to properly identify these students and have the proper training and administrative support so I can provide these students with the education they deserve. As established earlier in this paper, each state has their own definition of what gifted is, as well as different expectations for the supports are provided to gifted students. It is similar for twice exceptional students. Very few states have a true definition for these students, let alone standards and practices to help these students reach their full potential. In contrast, special education is covered by federal law and every state is required to follow the same standards and practice. This can be difficult for teachers, faculty and students, as twice exceptional students fit into both categories. In a perfect world, the needs for twice exceptional students would be addressed and a federal and local level. This begs the question, are teachers and schools prepared to work with twice exceptional students? Does training on working with twice exceptional students exist?

(Bianco, 2010) conducted a study that used over two hundred and seventy teachers (special education, gifted and general education) with the purpose of examining what teachers knew about twice exceptional students, how they were referred and what if any training was provided to help guide the teachers. In the study, the teachers were tasked with analyzing students in both special and general education to make a recommendation as to whether or not the student should be added to a gifted program. The study found that teachers were far more likely to refer a student without an existing disability to a gifted program than they were to refer a student with a disability (Bianco, 2010). For example, general education teachers referred non-

special education students to gifted programs 97% of the time, whereas students with disability were referred between 80-96% of the time depending on disability (Bianco, 2010). Gifted teachers referred students with a special education label between 50-75% depending on the disability label. Gifted teachers also referred non special education students in the high 90% range. Slightly shockingly, special education teachers were the least likely to refer students with an existing special education label to gifted classes at between 40-60% depending on the label. Special education teachers also referred non special education students for gifted programs in the high 90% (Bianco, 2010).

The surprising part of the study is that 100% of the special education students were considered to be twice exceptional students, though obviously the teachers in the study were unaware of this. Why the big discrepancy? The lack of experience and understanding of twice exceptional students can lead to errors in identification and placement, this can be in turn due to lack of reasonable school supports (Mayes, 2016). In fact, according to the 2006–2007 State of the States in Gifted Education report (National Association of Gifted Children, 2007), four states (Kansas, Montana, Oregon, Virginia) require gifted and talented training as part of their teacher preparatory programs (Bianco, 2010). Baldwin states that errors can occur for three reasons. The first reason is that the student's disability is recognized but not the strengths. The second reason is that giftedness is recognized but not the disability. The final, third reason is that neither strengths nor disabilities are recognized. Even our own federal laws make it difficult for the teachers in this study to know what to do. "The mind-set of "adequate yearly progress" (No Child Left Behind [NCLB], 2002) limits the programs and creates risks of challenging both gifted and twice-exceptional learners (Roberts, 2015, p. 217)." Ultimately, it came down to factors identified by teachers as being critical for school success. Among these factors, compliant

behaviors (e.g., observing classroom rules, demonstrating appropriate classroom behavior) are consistently rated higher and more valued by classroom teachers than are academic ability and performance on academic tasks (Bianco, 2010, p.320). This, sadly along with a clear lack of training and understanding is what is creating a difficult learning environment for twice exceptional students as it's made clear by the fact that at the end of the study, only 20% of all the teachers stated they were prepared to meet the diverse needs of these students.

Unfortunately, the study above is not an anomaly. The National Council of Directors of Programs for the Gifted has stated that 65% reported that the training they have received did not properly equip teachers to work with gifted students and 58% stated that they had no professional development in this matter in previous years (Johnsen, 2013). In this same report 32% of teachers stated that advanced students were a low priority at their schools and proper and updated curriculum had not been provided (Johnsen, 2013). It is clear that twice exceptional students are greatly under served in our current education system. As we have touched on previously, there are systems out there that work for twice exceptional students such as the Response to Intervention and Multiple Perspectives Process. The goal of MPP is to develop student talent, create a nurturing environment and teach students compensation strategies to help keep them at grade level (King, 2005). The key to meeting this is creating professional development that teachers and school districts can use. Currently, Colorado is the only state that provides state education agency series of onsite, twice exceptional professional development to be implemented in schools (Lee, 2019). Next, the only program effective state training program for teachers about twice exceptional students which Colorado refers to as the 2E Project will be discussed.

Lee (2019) did a relevant study to see how Colorado's state training program actually worked. It was implemented in 2014 but this study was the first time the program was tested to see if it was working effectively. The National Twice-Exceptional Community of Practice has been pushing hard for these practices to be put into place for the obvious reason that twice exceptional students require specialized academic training as well as ongoing professional development (Baldwin, 2015). In another recent study, it was found that fewer than four states require educators or administration to have credentials for working with gifted students and half of responding states had no state policies but left the decisions to districts or continuing education units to determine requirements about gifted and talented in-service training for general education teachers (NAGC & CSDPG, 2013, 2015). This not only has a devastating effect on the twice exceptional community but on the gifted community as well. The study of the 2E Project training was done in a school district in Colorado; this particular district constituted 37,000 students, 9% being identified as gifted and 5.3% being identified as twice exceptional (Lee, 2019). Lee (2019) states "this study aimed to understand Colorado educators' experiences of participating in the 2E Project. Secondly, this study aimed to understand administrative support for 2E students and educators. Current educational service frameworks and professional development practices helped explain critical factors of systemic supports. Third, this study explored educators' perceptions of the impact training on 2E students' learning. Eight themes emerged from the data analysis" (p.345-346). The detail of this study and the extent of the training provided can be used in Appendix C.

Data collected from the training yielded overwhelmingly positive results. Many of the educators stated they felt more prepared to work with twice exceptional students. Participants noted that even though they had heard of many of the strategies used in the training, they were



unaware of how to properly use them before the training. Staff also expressed the teamwork and comradery felt during the training. Because this was a topic that everyone was learning to implement in the same way, everyone was on the same page when learning strategies together. One of the biggest things the study found was the training needed to be part of the schools practice and policies and supported by the administration (Lee, 2019). This study ultimately shows that training for twice exceptional learners is needed and should be supported by states and school districts. States and school districts need to start providing support to educators to increase knowledge of and skills in twice-exceptionality, professional learning providers must start incorporating strategies that help educators access and retain information (Lee, 2019). Supports used in this study such as hands-on practices, collaborative opportunities like school teams or cohorts, case study assignments on real students, and role-playing are tools proven to work to support educators (Lee, 2019).

As demonstrated by the clear lack of evidence based studies out there, it is safe to say that teachers and schools are significantly behind when it comes to providing appropriate teacher training. The Lee study claims to be the first of its kinds that truly examine the training programs out there for teachers and twice exceptional students, which is a shame because it was published in 2019. There are so many good education models out there that we know work with twice exceptional students as well as gifted students. Hopefully, through the Lee study we see how important and effective providing teachers with proper training and strategies truly can be.

## CHAPTER III: DISCUSSION AND CONCLUSION

### Summary

The goal of this thesis was to find effective teaching strategies for twice exceptional learners. The data and studies aligned with three main areas: factors that affect twice exceptional learners, effective strategies for twice exceptional learners and how schools can properly prepare teachers to work with their twice exceptional students.

Mayes (2016), Ronskley-Pavia (2019), and Assouline (2010) all conducted great studies on the factors that affect the twice exceptional student's ability to learn. Mayes (2016) study found that the significance of labels, social and personal experiences of exceptionality, and challenges and strategies in the school environment were the biggest factors affecting the twice exceptional student. The Ronskley-Pavia's (2019) study focused on the effects that bullying had on twice exceptional students. From the data, six common experiences emerged: bullying by peers, bullying by teachers, teachers' and adults' responses to bullying, social isolation and bullying, the emotional effects of being bullied, and protective factors, all of which (except protective facts) had a vastly negative impact on the students. Assouline (2010) set out to determine whether a student is twice exceptional, identifying the possibility of psychosocial concerns, and developing educational recommendations. The results of the study suggest that through comprehensive evaluation it is possible to identify a student with gifted and special education needs and that it is ultimately the school's responsibility to make sure twice exceptional students are getting their needs met. These studies help determine and expose one of the biggest factors that affect twice exceptional students: their social emotional health.

This can be a difficult issue for any student but twice exceptional students are very complex thus making this issue that much more difficult. Being a twice exceptional student

would be difficult. On one side of the coin, the student is extremely gifted in a subject area but in another area at such a deficit that the student requires special education services. This can be difficult for a young person who may already be struggling to find friends, find his or her group identity, distinguish between appropriate and inappropriate social interactions, and find like minded people. Additionally, twice exceptional students are trying to understand why they excel so much in one area and struggle so greatly in another. This can be why Lovecky (2004), Gilman (2013) and Neilsen (2002) all discussed the effect this can have on twice exceptional students. Why is it that often these students can have crippling social emotional struggles, and are seen by peers and teachers as being lazy or different? Why can it be common for twice exceptional students to become frustrated with work easily, have poor self-worth which in term can lead to negative behaviors? It's because twice exceptional students' social emotional needs aren't being met which affects their work in the classroom.

Coleman (2005) reported that twice exceptional students' teachers who were able to recognize the students' needs and areas of strengths and tailor the material to meet those areas had a far better response than other teachers. Gilman (2013) found that therapeutic interventions such as reading interventions, occupational therapy, and vision therapy are needed to prevent years of academic struggle. Baum (2014) sums up every other study pretty well when those twice exceptional students want to feel safe, valued and accepted. To do this, educators must find students' strengths, talents, interests and hobbies. This allows material to be tailored to a student's talents and interests as well as differentiate strategies and materials that directly relate to students. Next, address student deficits. Though working on strengths is really important, deficits do need to not only be addressed and identified by the educator, but also improved on so students can work on these deficits and use them in application. Last, twice exceptional students

tend to develop skills in a nonparallel fashion and intermittently, rather than a typical linear pattern. Because of these, progress should be measured over a longer period of time than the usual standard in order to measure grade level performance (Baum, 2014).

When it comes to teaching strategies and models for twice exceptional students the research supports four basic strategies and models: Social/Emotional needs (Baldwin, 2015), Response to Intervention (Crepeau-Hobson, 2013), Multiple Perspectives Process Model (Coleman, 2015; Winebrenner, 2003), and School-wide Enrichment Model (Baum, 2010; Baum, 2014; Renzulli, 2010). Baldwin (2015) suggested social emotional, safe and problem solving culture that clearly places value on the student.

The Response to Intervention model is an early model for using intervention that is made in conjunction with the general education classroom. It is designed to help identify students who may need special education services or accommodations (Fuchs, 2003). RTI is designed to revolve around a collaborative, multitier, problem solving intervention process with ongoing monitoring to take aim at preventing what are known as at risk students from failing in school (Crepeau-Hobson, 2013). Though RTI was originally intended to be a model used solely for special education students, since its implementation, researchers have discovered that RTI is an effective teaching model for every student (Adams, 2013). Creapeau-Hobsons (2013) found that for RTI to be effective, efforts must be made to use a strengths-based approach at all tiers. At Tier 1, for example, assessment efforts should include the use of multiple grade-level screening tools. Tier 2 should record reviews and targeted assessment that elucidates processing, academic, and social-emotional deficits as well as strengths. Finally, educators should provide a comprehensive, multidisciplinary psycho-educational evaluation designed to tap the specific pattern of the student's unique pattern of intellectual and academic strengths and weaknesses.

Like RTI the “Multiple Perspectives Process Model” or MPPM is another effective model used by teachers. This model is student centered and is heavily based on collaboration and creating a strong team based around the student. This greatly encourages school staff to collaborate with the student, their families and other professionals to bring in different perspectives to effectively help the student grow and succeed (Coleman, 2015). Coleman (2015) and Winebrenner (2003) studies both agree that the MPPM is effective due to its intense focus on the student and their needs. MPPM basically does away with things that aren’t helpful and finds ways to make the students' learning experience as centered around them as it possibly can be.

Lastly, we have the Student Enrichment Model or SEM. Baum (2010; 2014) found that twice exceptional learners thrive in SEM programs because SEM programs allow students to hypothesize, critique and create. It helps twice exceptional students who struggle with executive functioning and self-regulation gain more how to learn skills. SEM goes on to help twice exceptional students who struggle in reading and in writing because data gathering and productivity are authentic to the discipline and tap into the talent areas of the students. SEM takes an effective three step approach that provides students with an authentic practical approach to learning. These steps have been shown by Baum to be a highly effective way to educate twice exceptional learners.

Three large scale studies from Bianco (2012), Johsen (2013), and Lee (2019) discussed how schools provided training for teachers on working with twice exceptional students. Bianco’s (2012) study addressed the difficulties teachers have in their ability to even identify what a twice exceptional student is and where they should be placed. The study found that all teachers (general, special and gifted) were all far more likely to refer to a non-special education student for a gifted class than they were a special education student. Johsen’s 2013 study found that 65%

reported that the training they have received did not properly equipt to work with gifted students and 58% stated that they had no professional development in this matter in previous years. In this same report, 32% of teachers stated that advanced students were a low priority at their schools and proper and updated curriculum had not been provided. The lack of experience and understanding of twice exceptional students can lead to errors in identification and placement, this can be in turn due to lack of reasonable school supports (Mayes, 2016). Lee's 2019 study was one that actually yielded positive results, due to the fact that it took place in Colorado, one of the few states that actually has twice exceptional student standards and practices. This training provided hands-on practices, collaborative opportunities like school teams or cohorts, case study assignments on real students, and role-playing are tools proven to work to support educators (Lee, 2019). The training proved to be successful as educators stated they felt more prepared themselves and as a school as a whole to meet the needs of their twice exceptional learners.

### **Limitations of the Research**

Throughout the course of the research for this thesis there were some hiccups and limitations. Before I broadened the parameters of the search to answer my question, my original search had many limitations. This is because the twice exceptional learner is a relatively new phenomena in terms of it being officially recognized. Twice exceptional has had different labels and identifiers over the years, and hasn't truly been studied until recently. The official term for twice exceptional students wasn't fully agreed up on till 2013 (Baldwin, 2015). This made it difficult at first to find articles and research of the twice exceptional student. What I needed to do, which ultimately worked, was search gifted and special educational strategies. This is where I was able to identify overlap in certain strategies. This gave me a better understanding of how I have to refine my searches using better key terms as well as terms specific to education. Once I

was able to cast a broader net, I was able to get a better understanding of the material thus allowing me to again narrow my searches to find more specific information to answer my question. This also allowed me to find a great deal of strategies that could be used for twice exceptional students, which was great because it is the main focus of this thesis.

The research pool was very limited when it came to certain areas of research for this paper. One of the areas I found interesting was the lack of gifted programs that are in place around the country. When researching twice exceptional learners, it is important to do research and cover the gifted side of the spectrum since it makes up half of the twice exceptional learner. It was difficult to find studies and detailed legislations that entailed what a gifted learner was and how to best accommodate them. What I found was that gifted programs are mostly mandated on a state by state basis and that information is very hard to find with very few states offering any true insight or usable material. Many articles and research about gifted learners and models and strategies to help them are older and somewhat outdated. It sadly appears that the gifted side of the twice exceptional learner is falling by the wayside.

When it comes to the twice exceptional learner there is absolute nothing when it comes to the protection and appropriate accommodations these students receive by law. It honestly doesn't exist at this point, there is a very brief mention of twice exceptional learners in the latest IDEA, but it is purely that, just a mention. With the twice exceptional learner being a newer phenomenon legislation doesn't exist and neither do protections under the law. For most of the twice exceptional population, they are protected under their special education diagnosis, which as we know varies from person to person.

Many of the research limitations in the thesis came at the expense of time. The twice exceptional learner, though not new, is considered new in terms of its relevance and acceptance

in the educational field. Though there is a lot of good new material out there, twice exceptional learners haven't been around long enough for there to be past information and materials.

### **Implications for Future Research**

In the future, I would like to see more research done in general for twice exceptional students. Throughout my research I came across some good studies involving twice exceptional students; the issue was that there aren't a lot of these studies. There needs to be more mass studies done on many different aspects of the twice exceptional learner. Mainly, I would like to see a study on a definitive way to identify twice exceptional learners. Though the research there have been suggested guidelines on how to figure this out but nothing definitive. It was hard enough finding procedures and practices that schools use to identify gifted students, which is half of what the twice exceptional learner is. Additionally, I would also like to see more studies and data collected on how gifted students are being served in different states and regions around the country. Gifted students and gifted programs are extremely important; these students, it seems though my research, are not getting their academic needs filled, similarly to the twice exceptional learner. In special education, on the other hand, there is a plethora of studies and data that back up why and how each student is identified and receives services. Along with the research and testing that needs to be done to help with the identification process, I would like to see larger studies done to back up the methods and model discussed in this thesis. Many of the studies I read and used for this paper consisted of a small number of students. It would be helpful to see a full on nationwide study with a wide range of students from all over the country. This type of data can really show how effective these methods and models can actually be. Through this kind of research and studies, I would like to see a universal model for how to work with twice exceptional students. I would like school districts around the country to have a model they can



refer to for working with and meeting the needs of twice exceptional students, much like there is with special education students. I believe this is the reason many districts and school systems around the country struggle with meeting the needs of a twice exceptional learner. There is no universal model to use so schools are left to fend for themselves not really knowing what to do, unless the school has an expert on twice exceptional students, which most schools don't.

### **Implications for Professional Application**

The knowledge I have obtained through the process of this thesis will have an impact on me as a teacher moving forward. The ability to recognize and help twice exceptional students is key. I currently work in a school with many students who would fall under the twice exceptional label. This paper gave me a better understanding of what that really is and what that can look like in the classroom. It is important for teachers to remember that even if students qualify for special education, they can still be on a genius level in another subject area in school. This was evident in Ronksley-Pavia (2019) study on bullying. Oftentimes when a teacher is perceived as a bully, it was because a teacher was heavily focused on what students couldn't do rather than what they could do. This can happen to any teacher; it can be difficult not to get caught up on students' struggles rather than their strengths because frankly it's easier. Baldwin (2015), Ronksley-Pavia (2019), Baum (2014), and Mayes (2016) all speak heavily on the importance of student relationships and students' emotional needs. This is very important and something teachers should focus on more regardless of the student being in special education, gifted, twice exceptional or "neurotypical". Getting to know students and their needs is in my opinion and I believe the opinion of these studies, the best way to have a better understanding of students. Teachers can be an expert of every instructional method and model out there but if they don't know how to connect with students or analyze their needs, then all that expertise doesn't matter.

It's important for teachers to recognize their students' strengths and preferences. In each of the mentioned studies, when students' needs and strengths were put first, students performed better, much of their anxiety and depression abated, students liked being in class, they felt more comfortable sharing and so on. I empathize with teachers who have class sizes anywhere over 20 students. It can be extremely difficult to personally know the ins and outs of every student for teachers in a bigger district with over 200 students per semester. It can cause teachers to give up and just focus more on the material and curriculum rather than the students. Under these conditions, it is a struggle for educators to tailor their material in such a way to meet each students' needs and interests. Thankfully, there are teachers out there who can do it and my hat goes off to them; it is no easy task.

Learning more about the Response to Intervention Model is another big take away I have from this paper. We currently use the RTI model at my school and it is my understanding that it is the model of choice around most schools in Minnesota. Though I did have some prerequisite coursework in this area, it was informative to read more in depth about how the model works and the case studies that go along with it. I learned so much about the RTI process and I am a big fan of the idea of identifying a student who is at risk and trying to make a change then rather than waiting until the student actually has an urgent issue. RTI provides students with as much support as possible in a general education setting before taking further measures. This goes back to making the students feel comfortable and meeting their needs a way that works best for them. The last thing students want to do, whether they admit it or not, is to get pulled out of class for help. The RTI model tries to ensure that every step is taken before that happens which is truly student focused. I am glad we use this method in my school and in this state. I have seen it work first hand and I believe that it keeps the students' best interests in mind.

## **Conclusion**

Twice exceptional students are an emerging demographic in schools. It is important that schools and teachers know who to work with these students to make sure they are getting the best education possible. Throughout the course of this study, it is clear we are moving in the right direction. There are many great educational models and strategies that have been proven to work with twice exceptional students. Once twice exceptional students get the recognition and schools get the funding they need to help support these models and strategies, I have faith that the educational system will be on the right track to providing the proper care and education to meet the needs of the twice exceptional students.

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## APPENDIX

## Appendix A: Response to Intervention, Tables 1-3, Crepeau-Hobson, 2013

**Table 1.** Common Characteristics of Gifted Students With Learning Disabilities

Characteristic	Manifestation of characteristic
Superior verbal skills	Demonstrates inconsistent or uneven academic skills and/or academic decline over time
Ability to master complex concepts quickly	Makes seemingly simple and careless spelling and/or calculation errors
High levels of creative and thinking and/or curiosity	Exhibits disruptive classroom behavior and/or struggles with peer relations and interactions
Deep insights into complex issues and topics	Struggles to express ideas on paper
Remarkable spatial skills	Has difficulties with writing and other fine motor tasks
Demonstrates a solid work ethic in areas of interest	Resists simple, rote academic tasks and is easily frustrated
High level of reasoning and problem-solving abilities	Is distractible and struggles to sustain attention and/or lacks organizational and study skills
Has a sophisticated sense of humor	Is stubborn, argumentative, and opinionated yet highly sensitive to criticism

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## Appendix A: Response to Intervention, Tables 1-3, Crepeau-Hobson, 2013

**Table 2.** A Range of Interventions for Anthony in a Strength-Based Response-to-Intervention (RTI) Model

Content area/domain	Strength-based Tier 2 interventions <sup>a</sup>	Strength-based Tier 3 interventions <sup>a</sup>	Tier 2 interventions to support academic achievement	Tier 3 interventions to support academic achievement
Science	Differentiated science instruction: Science content, learning process, products, and/or learning environment is differentiated for student  Science enrichment: Student receives enrichment instruction to delve deeper, ask higher level thinking questions, and broaden depth of content Science content extension: Student receives opportunities for real-life problem solving in area of strength/interest Curriculum compacting: Provide replacement strategies for material already mastered through the use of instructional options that enable a more challenging and productive use of the student's time Independent research projects in areas of interest/ strengths Working with local expert as mentor in areas of interest/ strengths Summer science program	Grade acceleration for science  University summer internship exploring astronomy and astrophysics Internship with local expert	Student works in small groups and receives explicit instruction on using graphic organizers and learning strategies to organize textbook information	
Language arts—writing	Differentiated instruction—focus on the creative process in writing  Reinforce positive aspects of written work		Graphic organizers  Inspiration software—mind mapping (for organization) Small-group instruction Voice recognition software (i.e., Dragon Naturally Speaking) Word prediction software Explicit small-group instruction focused on writing mechanics	Explicit instruction in strategies for planning and revising compositions using the Self-Regulated Strategy Development Model (SRSD; Harris & Graham, 1996)  Explicit instruction in paragraph development
Reading	Independent reading on topics of interest  Books and articles on tape in areas of interest		Small-group instruction  Reading strategy instruction Books and articles on tape in areas of interest	Daily small-group skill-specific instruction
Social/emotional	Volunteer at science museum as docent		Participation in social support group at school  Instruction in discrete social skills using behavioral approaches or a cognitive social problem-solving model	Individual counseling at school

<sup>a</sup>Nurturing giftedness.

## Appendix A: Response to Intervention, Tables 1-3, Crepeau-Hobson, 2013

**Table 3.** Resources for Teachers and Parents of Gifted Students With Learning Disabilities

Title	Author/date/publisher	Notes
Twice Exceptional Students: Gifted Students With Disabilities, An Introductory Resource Book	Colorado Department of Education. 2005. Denver, CO: Author.	Available at <a href="http://www.cde.state.co.us/gt/download/pdf/TwiceExceptionalResourceHandbook.pdf">http://www.cde.state.co.us/gt/download/pdf/TwiceExceptionalResourceHandbook.pdf</a>
Twice Exceptional Students, Gifted Students With Disabilities, Level 2: Establishing an Educational Plan Through a Collaborative Problem-Solving Model	Colorado Department of Education. 2009. Denver, CO: Author	Available at <a href="http://www.cde.state.co.us/gt/download/pdf/Level2_EdPlanThroughProblemSolvingModel.pdf">http://www.cde.state.co.us/gt/download/pdf/Level2_EdPlanThroughProblemSolvingModel.pdf</a>
A Guidebook for Twice Exceptional Students: Supporting the Achievement of Gifted Students With Special Needs	Montgomery County (MD) Public Schools. n.d. Rockville, MD: Dept. of Curriculum & Instruction	Available at <a href="http://www.wrightslaw.com/info/2e.guidebook.pdf">http://www.wrightslaw.com/info/2e.guidebook.pdf</a>
Rtl for Gifted Students	Mary Ruth Coleman and Susan K. Johnson (Eds.). 2011. Waco, TX: Prufrock Press	
Twice-Exceptional Gifted Children: Understanding, Teaching, and Counseling Gifted Students	Beverly A. Trail. 2010. Waco, TX: Prufrock Press	

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## Appendix B: School wide Enrichment Model, Tables 1-2, Baum 2010

Table 1: SEM and 2E: Summary of Success

	Target Population	Identification & Programming	Research
Elementary Enrichment Program for Gifted/LD (Baum, 1988)	Gifted learning disabled students	Students were identified for g/t and provided with a weekly enrichment program based on developing strengths & interests	Small class setting in enrichment program
The Prism Metaphor: A new paradigm for reversing underachievement (Baum, Renzulli, & Hebert, 1995)	Gifted underachievers some of whom were twice exceptional	Students identified as gifted underachievers and met with an enrichment specialist weekly to conduct small or individual investigations of real world problem	Eighty-two percent of the students made positive gains during the course of the year or in the year following the intervention in achievement, attitude, or behavior. Most were no longer underachieving in their school settings at the end of the intervention.
Talent Beyond Words and New Horizons (Oreck, Baum, & McCartney, 2000)	Talented economically disadvantaged students; some of whom where ADHD and LD	Students identified as talented in the arts received professional arts classes and opportunities. Type I experiences in the arts were used to identify the students. Identified students participated in Type II training in music and dance, conducted by professional musicians and dancers. Performances including a traveling troupe of musicians, dance performances, and participation in inaugural events and national competitions comprised Type III outcomes.	After 3 years all participants gained significantly in reading and math. The students most at risk academically also received academic support integrating talent area. These students began to perform more like their achieving talent mates.
Project CUE (Delcourt, 2000)	Talented economically disadvantaged students; some of whom where ADHD and LD	Students identified for gifts in art, music, science, math, writing, dance, drama, and writing received 1 hour daily of talent development (Type I and Type II training). Type III consisted of art shows, published writing, science fair projects and performances.	Students who were matched to students had no program within their school. These groups were compared in terms of math and literacy scores. They scored significantly higher than the students from the comparison school in both math and reading.
Project High Hopes (Baum, Cooper, Neu, & Owen, 1997)	Gifted students with special needs—LD, ADHD, PDD, deaf	Students with IEP for special needs were identified as talented in engineering, visual arts, science, or drama and served weekly in a 3 year program. Type I activities offered to all students identified	Over the course of 3 years, students improved dramatically in their core areas aligned with their talents. For example, several students won statewide competitions in science and engineering, others qualified for honors programs in high school, and

## Appendix B: School wide Enrichment Model, Tables 1-2, Baum 2010

**Table 2: Unit Plan Template**

<b>Big Ideas</b> What is the connection between geography, technology, belief systems and the development of particular civilizations? • How does the genre of folk tales convey the elements of a culture?				
<b>Concepts and knowledge</b> Causes of human conflict • Tension between individual rights and government control (paternalism) • Geography and early settlement, Shang Dynasty, Daoism, Confucianism, and Legalism, Silk Road, first emperor of China, Han Dynasty • Folk tale genre, elements of a folk tale				
<b>Type I</b>	Bowers Museum: Terra Cotta Warrior exhibit and art workshop. History, art and physics of clay warriors	Video of Chinese folk tales	Visual montage of main events in history including Olympics and Tiananmen/invention scavenger hunt	Interest center (including student travel photos)
<b>Type II</b>	<b>Skill of the discipline</b>	Interpretation of folk tales as a genre (literature)	Map skills	Analysis of artifacts
	<b>Critical and creative thinking</b>	Interpretation of folk tales as a primary source (history) Comparing and contrasting of philosophies based on simulation of tenets of each philosophy.	Silk Road simulation: application and synthesis of information.	Study of a novel about Modern China (main idea)
		<b>Communication skill</b>	Writing folk tales	
		<b>Learning how to learn skill</b>	Learned how to use a graphic organizer for interpretation and idea generation	
<b>Type III</b>	Folk tale festival where they presenting original folktales & created an anthology for the Middle School library.			

## Appendix C: Colorado Department of Education 2E training, Tables 1-8, Lee 2019

**Table 1.** Schools' Demographics.

	School 1	School 2	School 3	School 4
Grade level	K–8	K–8	6–8	10–12
Special focus of the school	Science, technology, engineering, mathematics	Advanced academic education	—	Technical education
Total pupil count	750–800	700–750	1,000–1,050	N/A
Dominant ethnicity group	Hispanic or Latino (64%)	White (65%)	White (64%)	N/A
English language learners	45%	6%	6%	N/A
Free and reduced lunch	69%	8%	29%	N/A
Gifted and talented	8%	46%	10%	N/A
Special education	9%	1%	10%	N/A

*Note.* The data are those of 2014–2015 school year (Colorado Department of Education [CDE], 2015). The 2014–2015 gifted and talented enrollment at the state level is 7.7% (CDE, 2016a).

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## Appendix C: Colorado Department of Education 2E training, Tables 1-8, Lee 2019

**Table 2.** Participants' Training Background.

	Main responsibilities	Highest degree	Undergraduate coursework in special education or gifted education	Graduate coursework in special education or gifted education
Finished Levels 1 and 2; participated in Year 2				
School 1 Teacher	General education teacher	Master's degree	None	None
School 2 Teacher A	2016–2017: General education teacher Before: Gifted education specialist/teacher	Master's degree	Not a major or minor, but a required coursework in special education and gifted education	Not a major or minor, but a required coursework in special education and gifted education
School 2 Teacher B	General education teacher	Master's degree	9 credit hours in gifted education	3 credit hours in gifted education
School 3 Learning Specialist	Special education specialist/teacher	Master's degree	None	None
Hope Learning Specialist	Special education specialist/teacher	Master's degree	Not a major or minor, but a required coursework in special education	Major in special education
Finished Level 1; participated in Year 2				
School 2 School Psychologist	School psychologist	Doctorate	Minor/emphasis in special education; required coursework in gifted education	Minor/emphasis in special education; required coursework in gifted education
School 4 Learning Specialist	Special education specialist/teacher	Bachelor's degree	Major in special education	None
Administrators				
Hope Administrator A	Director	Master's degree	None	Major in gifted education
Hope Administrator B	Gifted education specialist/teacher	Master's degree	None	3 credit hours in special education; major in gifted education
State Administrator A	Professional development consultant	Doctorate	None	Not a major or minor, but a required coursework in special education (12 credit hours); major in gifted education (43 credit hours)
State Administrator B	Twice-exceptional coordinator, gifted education specialist	EdS and MEd	Minor/emphasis in special education (18 credit hours); Minor/emphasis in gifted education (18 credit hours)	Minor/emphasis in special education (18 credit hours); not a major or minor, but a required coursework in gifted education (12 credit hours)

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## Appendix C: Colorado Department of Education 2E training, Tables 1-8, Lee 2019

**Table 3.** Chain of Evidence.

Research questions	Focal points	Data collection			
		Documentation	Archival records	Interviews	Survey
Q1: What were participants' experiences serving 2E students before, during, and after the 2E Project Training?	2014–2016 2E Project completers: Participants' reactions, learning, and use of new knowledge and skills 2014–2016 2E Project partial completers: Participants' reactions and learning	<ul style="list-style-type: none"> <li>Administrative documents about the 2E Project, including agendas, announcements, minutes of meetings, course evaluation, and consulting records</li> <li>Formal reports or newsletters related to the 2E Project</li> </ul>	<ul style="list-style-type: none"> <li>CDE Data and Accountability portal</li> <li>The 2012–2016 Comprehensive Program Plan</li> <li>Service records from the Gifted Education Coordinator</li> </ul>	Questions about the 2E Project experiences with 2E Project completers and partial completers In follow-up interviews	Questions about the 2E Project experiences with partial completers
Q2: How have participants developed and implemented educational services for 2E students?	2014–2016 2E Project completers: Participants' reactions, learning, and use of new knowledge and skills	<ul style="list-style-type: none"> <li>District strategic plans</li> <li>School accountability plans</li> <li>Educational plans</li> </ul>		Questions about the development and implementation of educational plans with 2E Project completers	
Q3: What are participants' perceptions of the 2E Project's impact on 2E students' learning?	Students: Educational services for students	<ul style="list-style-type: none"> <li>Rtl or MTSS framework</li> <li>2E service protocol</li> </ul>		Questions about perceived 2E students' changes with 2E Project completers	
Q4: What were school- or district-level changes that resulted from the 2E Project?	District/School: Organization support and change			Questions about administrative supports with 2E Project completers, Hope District Administrators, and CDE Administrators	

Note. 2E = twice-exceptional; Rtl = Response to Intervention; MTSS = multitiered system of supports; CDE = Colorado Department of Education.

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## Appendix C: Colorado Department of Education 2E training, Tables 1-8, Lee 2019

**Table 4.** Strategies to Build Trustworthiness.

Phases of research	Activities	Tests
Research design	<ul style="list-style-type: none"> <li>• Reveal researcher's biases and position</li> <li>• Use replication logic in multiple-case study</li> </ul>	Reliability, internal validity External validity
Data collection	<ul style="list-style-type: none"> <li>• Use multiple sources of evidence               <ul style="list-style-type: none"> <li>○ Documentation</li> <li>○ Archival records</li> <li>○ Interviews</li> </ul> </li> <li>• Create a case study database               <ul style="list-style-type: none"> <li>○ Evidentiary sources</li> <li>○ Field notes</li> </ul> </li> <li>• Establish chain of evidence</li> </ul>	Reliability, internal validity Reliability
Data analysis and interpretation	<ul style="list-style-type: none"> <li>Apply triangulation</li> <li>Use member checks</li> <li>Establish the audit trail</li> <li>Build a thick description</li> </ul>	Reliability Reliability, internal validity External validity reliability

Source. Adapted from Merriam (1998) and Yin (2014).

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## Appendix C: Colorado Department of Education 2E training, Tables 1-8, Lee 2019

**Table 5.** Research Questions, Themes, and Subthemes.

Research Questions	Themes
RQ1: What were participants' experiences serving 2E students before, during, and after the 2E Project Training?	A. Increased knowledge and skills <ul style="list-style-type: none"> <li>• 2E student characteristics</li> <li>• Strength-based interventions</li> <li>• Resource hubs</li> </ul> B. Evolved attitudes <ul style="list-style-type: none"> <li>• Affirmation</li> <li>• Passion</li> <li>• Intrinsic motivation</li> </ul> C. Recurring challenges <ul style="list-style-type: none"> <li>• Competing interests</li> <li>• Limited time</li> <li>• Un-unified Rtl/MTSS framework</li> </ul>
RQ2: How have participants developed and implemented educational services for 2E students?	D. Utilizing a team approach <ul style="list-style-type: none"> <li>• Identification</li> <li>• Instruction</li> </ul>
RQ3: What are participants' perceptions of the 2E Project's impact on 2E students' learning?	E. Improved performance <ul style="list-style-type: none"> <li>• Academic outcomes</li> <li>• Affective outcomes</li> </ul> F. Difficulty in measuring impact
RQ4: What were school- or district-level changes that resulted from the 2E Project?	G. Improved school culture H. Planning for the future

Note. 2E = twice-exceptional; Rtl = Response to Intervention; MTSS = multitiered system of supports.

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**Table 6.** A Logic Model of the 2014–2016 2E Project in the Hope District.

Goal: To build capacity in the Hope District to recognize and meet the needs of 2E students

Focal Points	Needs assessment	Resources	Activities	Outputs	Outcomes	Impact
Educators: Teachers, specialized service professionals	Anecdotal report of demands in the field	<ul style="list-style-type: none"> <li>IDEA Part B funds for professional development</li> <li>Commitment from the Office of Gifted Education, CDE</li> <li>Commitment from the Hope District administrators</li> <li>Commitment from principals in pilot schools</li> <li>Partnership with Adams State University to give graduate credits</li> <li>Hope District \$ to reimburse substitute teachers</li> </ul>	<ul style="list-style-type: none"> <li>Level 1: 7-week online course</li> <li>Level 2: 2-day workshop</li> <li>Cohort meetings</li> <li>Year 1 follow-up visits (each 2-day long)</li> <li>Year 2: Four days of work with a leadership team chosen from Year-1 participants and other trained personnel</li> <li>Develop and implement the 2E MTSS Tier I Framework</li> <li>Develop and implement the mini-modules</li> </ul>	<ul style="list-style-type: none"> <li>Responses in end-of-course evaluations</li> <li>Responses in the end-of-workshop evaluation</li> <li>Case study assignments</li> <li>2E MTSS Tier I Framework</li> <li>Mini-modules</li> </ul>	<ul style="list-style-type: none"> <li>Increased knowledge and skills</li> <li>Positive attitudes toward this professional learning and future development in twice-exceptionality</li> <li>Improved identification practices</li> <li>More instructional adaptations</li> </ul>	<ul style="list-style-type: none"> <li>Improved educational services for 2E students</li> </ul>
Hope District and four pilot schools	Anecdotal report of demands in the field	<ul style="list-style-type: none"> <li>Hope District \$ to buy <i>Neurodiversity in the Classroom</i> for book study</li> </ul>	Arrange time for delivering mini-modules	Verbal reports and feedback	<ul style="list-style-type: none"> <li>Improved school culture</li> <li>Increased awareness of twice-exceptionality</li> </ul>	
2E students	—		—	Achievement tests Teacher observations	<ul style="list-style-type: none"> <li>Successful progression</li> <li>Increased achievement test scores</li> <li>Increased self-confidence</li> <li>Decreased problem behaviors</li> </ul>	

Note. IDEA = Individuals with Disabilities Education Act; CDE = Colorado Department of Education; MTSS = multitiered system of supports; 2E = twice-exceptional.

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Appendix C: Colorado Department of Education 2E training, Tables 1-8, Lee 2019

**Table 7.** Suggestions From 2E Project Training Participants for Providing Administrative Support.

The Colorado Department of Education	The Hope District
<ul style="list-style-type: none"> <li>• Provide ongoing support and guidance for partner administrative units</li> <li>• Generate the next step after the two-year collaboration, including new training topics (e.g., policy and advocacy)</li> <li>• Build a network with educators in special education</li> <li>• Develop evaluation plans to improve and sustain the 2E Project</li> <li>• Provide targeted, customized professional learning experiences</li> <li>• Extend the 2E training to educators and students in private and charter schools</li> </ul>	<ul style="list-style-type: none"> <li>• Build a network among new and old 2E cohort members</li> <li>• Fund-designated 2E personnel</li> <li>• Plan follow-up meetings to keep the momentum</li> <li>• Create multiple ways of communication</li> <li>• Create a platform to share the work and resources of the 2E Project</li> </ul>

Note. 2E = twice-exceptional.

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## Appendix C: Colorado Department of Education 2E training, Tables 1-8, Lee 2019

**Table 8.** Specific Recommendations for Educators, Professional Learning Providers, and Administrators.

	Educators	Professional learning providers	Administrators
To improve educator outcomes	Align personal and professional goals Demonstrate the use of new knowledge and skills by providing 2E interventions	Utilize active learning strategies (e.g., hands-on practices, collaborative opportunities, case study assignments, role-playing) Explore job-embedded training and hybrid learning options	Encourage job-embedded training and hybrid learning options Support nontraditional professional learning that requires collective participation and longer duration Provide platforms for educators to share their learning
To improve student outcomes	Utilize an MTSS problem-solving approach Develop and implement strength-based interventions		Support data-driven, classroom-focused training Include measures of student outcomes in evaluations Identify student growth as part of long-term goals of training
To create organizational support and changes	Network with educators outside of the gifted education field	Include policy and advocacy training	Receive 2E training Network with administrators outside of the gifted education field Allocate built-in time for collaboration Recognize 2E services as an integral part of general education initiatives (e.g., MTSS)

Note. MTSS = multitiered system of supports; 2E = twice-exceptional.

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